

British Birds

February 2015 • Vol.108 • 59–118

TOS 104



Birds of the Sheffield area

IBAs – Montserrat

Ring Ouzels

Spinning phalaropes

Best Bird Book 2014

NATURAL HISTORY
MUSEUM LIBRARY

09 FEB 2015



300019299



British Birds

Established 1907, incorporating The Zoologist, established 1843

Published by BB 2000 Limited, trading as 'British Birds'

Registered Office: c/o McPhersons CFG Limited, 23 St Leonards Road
Bexhill on Sea, East Sussex TN40 1HH

ISSN 0007-0335

www.britishbirds.co.uk

Editorial

Roger Riddington
Spindrift, Eastshore,
Virkie, Shetland ZE3 9JS
Tel: 01950 460080

editor@britishbirds.co.uk

'News & comment' material to

Adrian Pitches

adrianpitches@blueyonder.co.uk

Subscriptions & administration

Hazel Jenner
4 Harlequin Gardens,
St Leonards on Sea,
East Sussex TN37 7PF
Tel & fax: 01424 755155

subscriptions@britishbirds.co.uk

Design & production

Mark Corliss
m.corliss@netmatters.co.uk

Advertising

Mathew Hance, Digital Spring Ltd,
Golden Cross House, 8 Duncannon
Street, London WC2N 4JF
Tel: 0870 803 3737

BB@digital-spring.co.uk

Guidelines for contributors

See www.britishbirds.co.uk

British Birds

Editorial staff Roger Riddington (Editor),
Caroline Dudley, Peter Kennerley

Editorial Board Dawn Balmer, Ian Carter,
Richard Chandler, Martin Collinson,
Mark Holling, Chris Kehoe, Robin
Prytherch, Nigel Redman, Roger
Riddington, Brian Small, Steve Votier

Rarities Committee

Adam Rowlands (Chairman), Chris Batty,
Chris Bradshaw, Paul French, Martin Garner,
Nic Hallam, Micky Maher, Richard
Millington, Mike Pennington,
Richard Schofield, Steve Votier

Secretary Nigel Hudson, Carn Ithen, Trench
Lane, Old Town, St Mary's, Scilly TR21 0PA;
secretary@bbrc.org.uk

Notes Panel

Angela Turner (Chair), Will Cresswell,
Ian Dawson, Jim Flegg, Ian Newton,
Malcolm Ogilvie

Annual subscription rates

Individual subscriptions: UK – £54.00

Overseas (airmail) – £62.00

Libraries and agencies – £102.00

Back issues

available from www.britishbirds.co.uk
or the subscriptions office.

Printed by Hastings Printing Company

British Birds is owned and published by BB 2000 Limited, the directors of which are John Eyre (Chairman),

Richard Aspinall, Mark Holling, Conor Jameson, Ciaran Nelson, Ian Packer, Adrian Pitches.

BB 2000 Limited is wholly owned by The British Birds Charitable Trust (registered charity

No. 1089422), whose trustees are Bryan Barnacle, Neil Bucknell, Jeremy Greenwood, Ian Newton,
Peter Oliver and Richard Porter. Directors and trustees are volunteers who draw no remuneration.

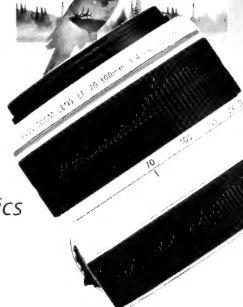
Copyright: When submitting articles, letters, commentary, text, photographs, artwork, figures or images (the 'Copyright Work') to the Editor, you are agreeing to grant to *British Birds* a perpetual, irrevocable, non-exclusive, royalty-free, copyright licence to use, edit, alter, adapt, translate, copy, publish, continue to publish or republish the Copyright Work (and/or an edited, adapted or translated version of it or part of it) in all forms, formats and media (including, but not limited to, print, digital and electronic forms) anywhere in the world. You must ensure that by submitting a Copyright Work that you are not infringing the Copyright of any other person. By submitting a Copyright Work you are warranting that you are the Copyright Work owner and that you have the right to grant the non-exclusive licence described above. For the avoidance of doubt, the Author/Artist shall remain the owner of the Copyright Work.

Front-cover photograph: Great Spotted Woodpecker *Dendrocopos major*, Finland, February 2011.

Oliver Smart

SWAROVSKI
OPTIK

PREMIER
DEALER



Carl Zeiss Sports Optics
Center

ALSO
stockists for:

Nikon ✓

Opticron ✓

Vortex ✓

Hawke ✓

QUALITY
VALUE
CHOICE



No.1 Destination for all things photographic and optical

london camera exchange

15 The Square, Winchester. SO23 9ES

01962 866203

email: winchester@LCEgroup.co.uk



For great experiences,
experience the smallest detail.
This is the moment we work for.



ZEISS.COM/ZEISS-EXPERIENCE



The new CONQUEST HD: the modern observation optics.

Perfect moments start with perfect optics: CONQUEST HD. The appeal of this modern all-rounder lies in its new HD-lens system. Its "Made in Germany" quality and design and a transmission in excess of 90%. All of these qualities makes for an uncompromising entry into the premium class of Carl Zeiss. Available in 8&10x32 and 8&10x42.
www.zeiss.com/sportsoptics



We make it visible.



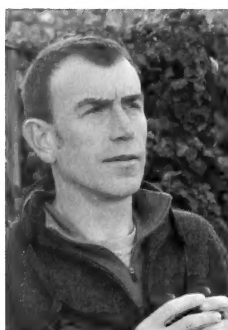
British Birds

Volume 108 • Number 2 • February 2015

NATURAL HISTORY
MUSEUM LIBRARY

09 FEB 2015

- 60 *BB eye* Simon Barnes
- 62 News and comment *Adrian Pitches*
- 66 Changing numbers of breeding birds in the Sheffield area
Dave Gosney
- 80 Important Bird Areas – Montserrat *Steffen Oppel, Gerard Gray,
James Daley, Stephen Mendes, Calvin Fenton, Gemma Galbraith,
Shawn Daniel and James Millett*
- 97   giving nature a home Extralimital races of the Ring Ouzel in Britain
Andy Stoddart
- 104 The spinning behaviour of phalaropes *Richard Chandler,
Mike Everett, Phil Palmer and Richard Porter*
- 112 The *BB/BTO* Best Bird Book of the Year 2014 *Peter Wilkinson et al.*
- 108 Obituaries 110 Notes
- 114 Reviews 117 Recent reports



I spent a few weeks in Sicily this winter, conveniently avoiding the stormy weather at home, and in January was able to participate in some International Waterbird Census counts. I particularly enjoyed a visit to Lentini Lake (a vast, artificial lake near Catania), notable for the last reliable records of Slender-billed Curlew in Sicily and a site where there was plenty of interest for a Brit. Yet there was much complaining by the local birders – things were not what they used to be, in fact it was the worst January count ever! I felt instantly at home – it was just like a Shetland Bird Club outing – but it did make me ponder whether birders are genetically programmed to pine for the old days.

Dave Gosney's paper in this issue is just one of many analyses showing how common bird populations have changed in the last 25 years, in this case in the Sheffield area. As in many parts of Britain, the losses are striking, yet there are gains as well. The massive declines of formerly common species are perhaps what British readers will inevitably focus on, whereas the perspective of someone from another part of the world might be quite different. Montserrat, for example. Like Sheffield, it's somewhere I've never been to, and it was good to learn more about both places when putting together this month's issue.

Roger Riddington



British Birds aims to: ❖ provide an up-to-date magazine for everyone interested in the birds of the Western Palearctic; ❖ publish a range of material on behaviour, conservation, distribution, ecology, identification, movements, status and taxonomy as well as the latest ornithological news and book reviews; ❖ maintain its position as the journal of record; and
❖ interpret scientific research on birds in an easily accessible way.

Who owns the countryside?

Do you suppose we'll ever get wildlife conservation a little higher up the political agenda? Every politician who ever spoke a platitude claims to be in favour of it – it's just that none of them ever really take it on. They're frightened they'll look trivial. People (you know – people with votes) might think they believed that birds were more important than human beings.

It's an odd world, when a matter like the future of the planet is regarded as trivial, but we have to accept that this is where we are right now. When things get tricky, conservation is always the first thing to go. For years, people in conservation have been trying to explain that our resources are limited, yet that concept has almost no meaning at all in political life. We carry on as if we had another country or another planet to spare.

But I have noticed a small change in recent months. It may not be significant in the end, but right now there is a subtle shift in public apprehension going on: and there are a few tender green shoots of public concern about wildlife conservation. And when there's enough public concern, the politicians have to act. At least, that's what's supposed to happen in a democracy.

And I see this small shift in a strange alliance, not something I would ever have expected. It's an alliance between Hen Harriers and bees.

So there I was, in a taxi that was taking me from Edinburgh airport to my hotel. The driver asked me why I was there; I explained that the following day I was to give the keynote speech to the AGM of the Bumblebee Conservation Trust. 'What's happened to the bees?' A sudden energy in his voice. 'Where have they all gone? I'm pleased you're doing it, you know, because it's something that really worries me.' The taxi driver has spoken: that infallible interpreter of all public moods and values, as every journalist in a hurry well knows.

But it's not just Edinburgh taxi drivers who worry about bees. A YouGov poll last year found that of all the environmental

issues – and Lord knows there are enough of them – the one that concerns people most is the loss of bees. Not climate change, not planning and urban sprawl, not agriculture, not overfishing, not pollution, not rainforest destruction: bees.

There's a wonderful line in the Ted Hughes poem *Swifts*: 'They're back – which means the globe's still working.' The thing about bees is that they're disappearing: and that is a very clear indication that the globe is really *not* working as it should.

And that's something that reacts on us at a pretty deep level. We don't need to know everything about the mechanics of life on earth to understand that without pollinators, life as we know it can't continue. The shortage of bees sends us a clear message that there really is something amiss in the way that we are running the planet. This shaft of insecurity is something that we can build on, something that could convince politicians that there really is some kind of public concern about environmental issues: that this is something people are beginning to worry about. And that they want to see something done about it.

It's a radical shift in public perception: wildlife conservation is traditionally seen as a favour, something that we humans dole out to the wild world out of the goodness of our hearts. Yes, let the Giant Panda survive: we like pandas and the idea of them still munching their way through the bamboo forest cheers us up immensely. And aren't we a wonderful dominant species for letting them do it?

But it's easy to see that if we kill off the bees, we are waging war on ourselves: that we are spoiling our planet, that we are doing dreadful things to our own home. Suddenly conservation is no longer a favour but something to do with the survival of every species on the planet, our own included. We conservationists have been saying this sort of thing for years: but it seems that the silencing of the bees' buzz is more eloquent than any words.

So let's move on to Hen Harriers. I don't have to explain this issue to the readers of *British Birds*: but the point here is that the attitude of the wider public to this systematic persecution is changing. There has been a slow build-up of concern that has spread far beyond birders. And it's not concern as in anxiety. It's concern as in anger. And that seems to be a damn good thing.

The conservation movement has been too polite for too long. No criticism of the RSPB or the Wildlife Trusts: it's essential that we have mainstream NGOs that are mature, responsible, cautious, and capable of taking part in the debate at a sober and serious level. But these organisations aren't enough. We need voices out there saying that this matters, that this is something that affects us all: and that's worth making a fuss about. The persecution of Hen Harriers is about a much deeper question than a few deaths: it's about who owns the countryside. Concern for Hen Harriers is a rejection of the view that the countryside – or for that matter the country – is a place where a few very powerful people can do exactly what they like.

It's not about gamekeepers, it's about landowners. It's not about birds, it's about power. And the widening ripples of anger about this issue are spreading out beyond mainstream conservation organisations, and beyond birders and other people who have an obvious interest in the health of the countryside. Why should rich people be able to take part in an activity made possible by systematic law-breaking? It's like saying that everyone in the cabinet can drive drunk, or that everyone with an income above a million pounds a year is entitled to a little rape.

So this combination of anger and concern – harriers and bees – is moving in on the national consciousness in a kind of pincer movement. At its base is the feeling that the countryside is not something for specialists. Birds are not just for birders. You don't have to be able to tell a ringtail from a Red-flanked Bluetail to feel concern about the future of our wild places. It's something that matters to us all.

It's a bit like *The Great British*

Bake Off. Before this programme caught the imagination of so many people, it was widely accepted that making fancy cakes and baking your own bread was old hat, something people no longer bothered with unless they were specialists: cooking buffs, baking nuts, generally pretty unusual people.

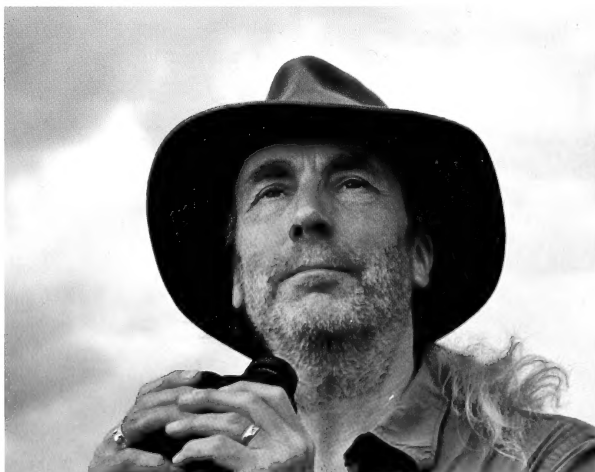
But now everybody seems to be baking. Every bookshop is full of baking books, every kitchen store full of more and more recondite baking equipment. Baking has become mainstream. What Paul Hollywood and Mary Berry have done for baking, so Hen Harriers and bees are beginning to do for the wild world: making it plain that this is something that everyone can be a part of.

Either way, it's about life, and bread, after all, is a symbol of life in most western cultures. The difference between home baking and the wild world is that there is an alternative. You don't *have* to bake your own bread, even though it's rewarding to do so. You can go out and buy a loaf.

There is no alternative to the wild world. You can't go to the Co-op and buy a moor and a couple of Hen Harriers, or a flower-rich meadow and a few boxes of bees. If we don't care for the wild world, we lose it. And this is a truth that's beginning to spread. So we must keep on telling that truth, and retelling it. In the belief that people are beginning to listen.

Simon Barnes

(honorary vice-president of the Bumblebee Conservation Trust and patron of Campaign Against Raptor Persecution)



News and comment

Compiled by Adrian Pitches

Opinions expressed in this feature are not necessarily those of *British Birds*

Scottish landowner fined in landmark vicarious liability prosecution

The first prosecution under Scotland's vicarious liability law for wildlife offences took place in December 2014 when landowner Ninian Stewart pleaded guilty at Stranraer Sheriff Court after his gamekeeper admitted laying a poison bait that killed a Common Buzzard *Buteo buteo*.

Stewart, 66, of the Glasserton and Physgill Estates in Dumfries & Galloway pleaded guilty to being vicariously liable for the criminal actions of gamekeeper Peter Bell, who was convicted in June 2013 of using carbofuran in a poison bait that killed a Buzzard. Bell was also convicted of the possession of three banned pesticides (carbofuran, strychnine and alphachloralose) and was fined a total of £4,450. On conviction, Bell was expelled from the Scottish Gamekeepers' Association – and Glasserton and Physgill Estates have now been expelled from the landowners' organisation, Scottish Land & Estates.

Stewart admitted four charges under Section 18A of the Wildlife and Countryside Act, which came into force in Scotland in January 2012. He was fined £675 – just 15% of the fine levied on the gamekeeper in his employ.

The amendment to the Act created a new offence of vicarious liability, which means that a person who has shooting rights over land – or who controls the exercise of such rights – can be found guilty of crimes committed by an employee acting as their agent. The Scottish Crown Office said that while there was no indication that Stewart had commissioned or knew about the offences, there was also no evidence he had exercised due diligence in respect of shooting on his estate.

Procurator fiscal Sara Shaw said: 'There is a proactive responsibility placed on those who employ gamekeepers to run shooting estates to ensure that it is done within the parameters of the law. Mr Stewart failed in his responsibilities and as a

result stands convicted of the killing of a wild bird.'

Scottish Land & Estates, which represents landowners across Scotland, said the gamekeeper was subsequently dismissed from his post and the shoot closed down. A spokesman said: 'The estate believed it had sufficient safeguards in place but that was not the case so the estate has admitted ignorance of the law and the limited extent of its culpability is reflected in the low level of fine. Before this incident, the estate had an unblemished record. When vicarious liability offences were introduced, there was a great deal of confusion over the liabilities of estates and that remains an ongoing issue despite the industry trying its utmost to advise on the pitfalls of this legislation.'

The 'low level of fine' (£675) was described as 'derisory' on the Raptor Persecution Scotland blog (www.raptorpersecutionscotland.wordpress.com), which queried whether the landowner should also be penalised by docking his Single Farm Payments. It now transpires that the rural payments division of the Scottish Government did indeed exact a penalty for Ninian Stewart's vicarious liability conviction. His defence agent, David McKie, said his client had been 'penalised substantially via a high five-figure deduction from his Single Farm Payment.'

It's not clear how many tens of thousands of pounds were deducted – or how this sum was calculated – but it is this form of economic sanction, rather than a fine of a few hundred pounds, which will really focus the minds of Scottish landowners. The new law of vicarious liability could then achieve the sharp reduction in wildlife crime on shooting estates north of the Border for which it was designed.

If only Defra ministers south of the Border were not so resistant to enacting vicarious liability in England and Wales too.

Prison sentence for gamekeeper filmed killing a Goshawk

The follow-up to the story in last month's issue concerning the convicted bird-of-prey killer George Mutch (*Brit. Birds* 108: 7–8) is that Mutch was duly handed a custodial sentence at Aberdeen Sheriff Court. Duncan Orr Ewing, Head of Species and Land Management at RSPB Scotland, said: 'This sentence is an historic, landmark result. Mutch has been sentenced to four months in prison fol-

lowing his conviction for the illegal killing of a Northern Goshawk *Accipiter gentilis*, illegal use of a trap; and illegal taking of a Common Buzzard and a second Goshawk. We would like to thank the Crown Office and Police Scotland for helping to bring this case to a successful conviction, as well as the RSPB Scotland investigations team for their exemplary work. This penalty should be a turning point,

sending a clear message to those determined to flout our laws that wildlife crime will not be tolerated but instead will be treated with the seriousness that it deserves. Wildlife criminals must expect no

sympathy from now on.'

For more details on the case see www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-30777299

Barnacle Goose cull proposed on Islay

Scottish Natural Heritage has proposed a 'sustainable goose management strategy' for the inner Hebridean island of Islay that involves culling the protected Barnacle Goose *Branta leucopsis*, in order to reduce crop damage by 30%.

Islay is a key wintering area for both Barnacle Geese and Greenland White-fronted Geese *Anser albifrons flavirostris*, both of which are classified as Annex 1 species under the EU Birds Directive. The wintering Barnacle Goose population has grown from about 20,000 in 1987 to an average of over 41,000 in recent years. Farmers across the island have received funding to partially compensate for economic losses caused by goose grazing since 1992.

Crop damage will be reduced through a combination of scaring, diversionary feeding for Greenland White-fronted Geese, and shooting of Barnacle Geese. The aims of the strategy include maintaining the Barnacle Goose population at a sustainable level and increasing the number of Greenland White-fronted Geese on Islay, through reducing disturbance, managing traditional feeding areas, and diversionary feeding.

More than 70% of the island will remain as undisturbed feeding areas for geese. This will include large areas of grassland on individual farms, RSPB reserves, rough grazing, dune grasslands, saltmarsh and roost areas.

Eileen Stuart, Head of Policy and Advice at

SNH, said: 'Barnacle Geese numbers have increased steadily on Islay over the past 20 years or so, and farmers have played a crucial role in this conservation success story. But with more geese, there has been increased pressure on both farmers and the public purse. We believe this new, long-term strategy strikes the right balance between conservation, making sure Islay farmers can use their lands profitably, and responsible use of public money.'

However, speaking on behalf of RSPB Scotland and the Wildfowl & Wetlands Trust, Stuart Housden, Director of RSPB Scotland, said: 'We believe that the evidence base on which the cull is proposed is fundamentally inadequate. We fully acknowledge that grazing geese sometimes affect agricultural operations, but past experience on Islay has shown that, with Barnacle Goose numbers at their current stable level on the island, less destructive means of managing those impacts are available, and moreover will be – at least in the shorter term – cheaper for the taxpayer. We urge the Minister to reconsider this risky decision. The spectacle of the geese on Islay is itself an economic benefit to tourism operators on the island, and we fear this "cull" will deter birdwatchers from visiting.'

See www.snh.gov.uk/land-and-sea/managing-wildlife/managing-geese/islay-geese-project



David Hosking/FLPA

29. Barnacle Geese *Branta leucopsis*, Loch Gruinart, Islay, March 2010.

Historic vote on ending spring hunting in Malta

The people have spoken: there WILL be a referendum on spring hunting in Malta after 40,000 people signed a petition demanding the right to vote.

Malta's Constitutional Court ruled on 9th January that there will be a referendum on spring hunting following the campaign by the Coalition for the Abolition of Spring Hunting. Romina Tolu, Campaign Coordinator for the Coalition, said: 'The process which has led to the court's decision was a particularly lengthy one, in which the hunting lobby tried to delay and mislead the people and the courts time and time again.'

'It is now crystal clear that the legislation in question is not an EU treaty obligation and it is more than evident that the hunting lobby were clutching at straws from the start.'

Malta's President has set 11th April as the date for the referendum. Ms Tolu commented: 'With the referendum taking place before the spring hunting season would normally open, this gives people the opportunity to stop spring hunting immediately. The hunters may have already had

their last spring hunting season.'

The EU Birds Directive bans spring hunting of birds, although Malta has had a derogation since it joined the EU in 2004. The quarry species are Common Quail *Coturnix coturnix* and Turtle Dove *Streptopelia turtur*. The Directive states that derogations may be made where there is no other satisfactory solution 'to permit under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers.'

In 2009, the European Court of Justice confirmed that during 2004–07 Malta had failed to implement the Birds Directive as too many birds were killed during the spring hunting seasons and a formal warning was made by the European Commission in October 2010.

Besides excessive hunting of Quail and Turtle Dove, the latter now a rapidly declining species and a cause for grave concern in Britain at least, many other protected bird species are routinely illegally killed by Maltese hunters in spring.

Bad news for backyard biodiversity

The BTO's latest BirdTrends report, produced in partnership with JNCC and published online (see www.bto.org/about-birds/birdtrends/2014), summarises the population trends for 120 breeding bird species in Britain & Ireland. For the first time, this year's report provides habitat-specific trends for many species, highlighting the habitats where species are in trouble. While intensive conservation efforts and targeted habitat management have benefited some rarer species, many widespread and formerly common birds are in trouble: no fewer than 28 species have decreased by more than 50% over the last 35–45 years.

'National declines in farmland birds are well

documented and these latest figures show that this decrease is continuing,' explains the report's lead author, Senior Research Fellow Stephen Baillie. 'The results of BTO surveys show that many familiar garden birds are also experiencing problems. House Sparrow *Passer domesticus* numbers have dropped by almost 70% since the 1960s and the data suggest that sparrows occupying urban and suburban habitats are faring worst.'

'The range of garden birds experiencing population declines appears to be increasing,' explains report co-author John Marchant, and it may surprise people to know that House Martin *Delichon urbicum*, Mistle Thrush *Turdus viscivorus* and Greenfinch *Chloris chloris* are heading in the same direction. Again, there is evidence that House Martin and Mistle Thrush declines are most pronounced around human habitation.'

So what can be done to reverse these declines? 'We urgently need more data to answer that question,' explains Dave Leech, a Senior Research Ecologist at BTO. 'Information generated by ringing birds and monitoring their nests proved that the majority of farmland bird declines were driven by a reduction in food availability during the winter. Drivers of garden bird declines are more variable; reduced winter food availability and disease appear to have caused a fall in Common Starling *Sturnus vulgaris* and Greenfinch numbers respectively, while House Sparrows seem to be struggling to rear enough chicks.'



30. House Sparrow *Passer domesticus*, Shetland, October 2011.

African Bird Club annual meeting

On Saturday 11th April, ABC will hold its 21st Annual Meeting and AGM in the Flett Theatre at the Natural History Museum in London. Non-members are also welcome. There is a great line-up of speakers covering subjects including the Albertine Rift Mountains, the Cape Verde Warbler *Acrocephalus brevipennis*, the Seychelles Paradise

Flycatcher *Terpsiphone corvina*, BirdLife's Flyways Programme, and the incredible advances in satellite tracking of our migrant birds. There will also be a wide range of books from WildSounds on sale, together with ABC's own goods. Full details are on the ABC website: www.africanbirdclub.org/events

Police commissioner does Northumbrian Roseates a good tern

A community fund, set up by the Northumbria Police and Crime Commissioner Vera Baird QC, has awarded the RSPB a grant of £2,000 to help prevent wildlife crime on its Coquet Island reserve, a mile off the coast of Amble, Northumberland.

Coquet is home to tens of thousands of breeding seabirds, including the UK's only colony of Roseate Terns *Sterna dougallii*, and landing on it is prohibited without consent. The RSPB will use the grant to upgrade the island's outdated CCTV system so that wardening staff can monitor the island effectively for illegal activity such as egg theft and disturbance of the terns.

Despite breeding on a remote island, Coquet's birdlife is not immune to such problems. In 2004, Roseate Tern eggs were stolen and in July 2012 two brothers from Amble caused reckless disturbance to breeding Roseate Terns when they landed on the island. Coquet Warden Paul Morrison said: 'This generous grant from the Police and Crime Commissioner means that we will be able to provide greater protection for the UK's rarest seabird and make staff feel more safe and secure when working on the island.'

New county bird recorders for Shropshire and Yorkshire

Shropshire Martyn Owen, 34 Peacock Hill, Alveley, Shropshire WV15 6JX; e-mail soscountyrecorder@gmail.com

In addition, Jill Warwick has asked us to mention that Yorkshire has now dispensed with the Vice-county recording system, and has moved to a system of four separate recorders for each of the four 'counties' that together make up Yorkshire. The Yorkshire system is now as follows:

County Recorder (rarities)

Craig Thomas craigctomas@yahoo.co.uk

North Yorkshire Recorder

Ian Court ian.court@mypostoffice.co.uk

South Yorkshire Recorder

Martin Wells martinwells@barnsleybsg.plus.com

East Yorkshire Recorder

Geoff Dobbs geoffdobbs@aol.com

West Yorkshire Recorder

(currently vacant) craigctomas@yahoo.co.uk

The list of county recorders is maintained on the BB website (www.britishbirds.co.uk/birding-resources/county-recorders-2). Please let us know if there are updates missing from this list.

The 600th British bird

With the official British List, maintained by BOURC, currently on 597 species, what might the 600th British bird be? Punts/predictions/suggestions continue to trickle in from BB readers. Last month (*Brit. Birds* 108: 10) Grey-necked Bunting *Emberiza buchanani* was added to the runners and riders. And this month another emberizid has been nominated. Portland stalwart Grahame Walbridge has gazed into his crystal ball and come

up with Chestnut Bunting *E. rutila* – or rather a Chestnut Bunting that finds its way onto Category A. There was no joy for the splendid male singing in WildSounds proprietor Duncan Macdonald's Norfolk garden in May 1998, nor the female on Fair Isle in September 2002, which is pencilled in on your editor's Shetland list. But maybe a first-winter bird on Fair Isle – or Portland – in late October?

For extended versions of many of the stories featured here, and much more, visit our website www.britishbirds.co.uk

Changing numbers of breeding birds in the Sheffield area

Dave Gosney

Abstract This paper illustrates some of the changes in bird populations in the Sheffield area between 1988–90 and 2008–11, using data from Timed Tetrad Visits to compare the numbers of birds counted in each period. It compares the merits of this approach with more traditional tetrad atlas studies undertaken three times in the same area since 1975 and asks whether the widely reported losses of some species have been matched by less heralded gains in others.

There have been many studies showing changes in the distribution of the UK's bird populations in the last 50 years. The BTO has published various national atlases, most recently *Bird Atlas 2007–11* (Balmer *et al.* 2013). At a local level, in my home area of Sheffield, three tetrad surveys have been published, covering the years 1975–80 (Hornbuckle & Herringshaw 1985), 1995–99 (Frost & Shaw 2013) and 2003–08 (Wood & Hill 2013). We can now look back and see how some species have disappeared from some areas, both nationally and locally, while others have become more widespread. But distribution is only part of the story. If a species declines from 50 pairs to ten pairs, the dot on a distribution map will stay the same, and the same is true when a new colonist goes from one pair to 20 pairs in the same square. The only way to represent those changes properly is to count the birds in different years and compare the differences. This paper attempts to do just that, comparing the numbers of birds counted in the Sheffield area in two periods, 20 years apart: 1988–90 and 2008–11. The changes in numbers presented here are mostly in keeping with the results of the Breeding Bird Survey (e.g. Hayhow *et al.* 2014) but this approach focuses on how population changes affect the numbers of birds encountered by birdwatchers in one area of England.

Methods

Contributors to the BTO/BirdWatch Ireland/Scottish Ornithologists' Club *Bird Atlas 2007–11* project were asked to count the birds located (by sight or sound) in their chosen tetrads (2 km × 2 km squares) during one-hour 'Timed Tetrad Visits' (TTVs). Effectively, this is the same methodology as that carried out in the Sheffield area during 1988–90, when one-hour counts were made during the breeding season in 294 of the 300 tetrads in the recording area of the Sheffield Bird Study Group (SBSG). The BTO has kindly provided the results of the counts made during 2008–11 so that the two sets of results can be compared, at least for the 255 tetrads that were counted in both surveys. Fig. 1 shows how those 255 tetrads were spread across the 12 10-km squares in the Sheffield area.

During *Bird Atlas 2007–11*, observers were asked to make at least two visits in the breeding season, counting the birds for either

17	23	23	21
23	25	21	21
24	21	13	23

Fig. 1. Number of tetrads in each 10-km square in the Sheffield area in which one-hour counts were made in both 1988–90 and 2008–11.

one hour or two hours and recording the birds of each hour separately. Consequently, for many tetrads, four one-hour counts were made. Likewise, in the SBSG survey, some squares were counted more than once, by the same or different observers. The analysis presented here uses just one count per tetrad in each period; in each case the count chosen to represent a tetrad is the one in which the most species were recorded (and thus even if other

species were counted in that tetrad during other visits, those details are omitted here).

Results

Decreasing species

Table 1 lists the species showing the greatest declines in the Sheffield area in the 20 years between 1988–90 and 2008–11. The table shows three species – Common Pochard *Aythya ferina*, Corn Bunting *Emberiza*

Table 1. Numbers of birds counted in one-hour visits to 255 tetrads in the Sheffield area during the breeding season: species showing a decline of 33% or more. Conservation status is listed as Red, Amber or Green according to Eaton *et al.* (2009).

	Number counted		% decline	conservation status	
	1988–90	2008–11			
Common Pochard <i>Aythya ferina</i>	15	0	100	Amber	●
Corn Bunting <i>Emberiza calandra</i>	6	0	100	Red	●
Dunlin <i>Calidris alpina</i>	3	0	100	Red	●
Turtle Dove <i>Streptopelia turtur</i>	16	1	94	Red	●
Common Redshank <i>Tringa totanus</i>	28	2	93	Amber	●
Wood Warbler <i>Phylloscopus sibilatrix</i>	59	5	92	Red	●
Tree Pipit <i>Anthus trivialis</i>	233	27	88	Red	●
Lesser Redpoll <i>Acanthis cabaret</i>	127	17	87	Red	●
Yellow Wagtail <i>Motacilla flava</i>	66	9	86	Red	●
Twite <i>Linaria flavirostris</i>	5	1	80	Red	●
Red-breasted Merganser <i>Mergus serrator</i>	5	1	80	Green	●
Grey Partridge <i>Perdix perdix</i>	88	19	78	Red	●
Common Cuckoo <i>Cuculus canorus</i>	133	29	78	Red	●
Whinchat <i>Saxicola rubetra</i>	81	20	75	Amber	●
Yellowhammer <i>Emberiza citrinella</i>	857	215	75	Red	●
Spotted Flycatcher <i>Muscicapa striata</i>	85	22	74	Red	●
Common Redstart <i>Phoenicurus phoenicurus</i>	207	54	74	Amber	●
Eurasian Teal <i>Anas crecca</i>	19	5	74	Amber	●
Tawny Owl <i>Strix aluco</i>	11	3	73	Green	●
Little Grebe <i>Tachybaptus ruficollis</i>	29	9	69	Amber	●
Willow Tit <i>Poecile montana</i>	38	13	66	Red	●
Ruddy Duck <i>Oxyura jamaicensis</i>	11	4	64	N/A	
Pied Flycatcher <i>Ficedula hypoleuca</i>	10	4	60	Amber	●
Common Starling <i>Sturnus vulgaris</i>	2,567	1,060	59	Red	●
Sedge Warbler <i>Acrocephalus schoenobaenus</i>	39	17	56	Green	●
House Sparrow <i>Passer domesticus</i>	3,627	1,626	55	Red	●
Northern Wheatear <i>Oenanthe oenanthe</i>	74	35	53	Amber	●
Common Swift <i>Apus apus</i>	1,211	575	53	Amber	●
Common Snipe <i>Gallinago gallinago</i>	31	15	52	Amber	●
Meadow Pipit <i>Anthus pratensis</i>	1,663	835	50	Amber	●
Skylark <i>Alauda arvensis</i>	892	451	49	Red	●
Willow Warbler <i>Phylloscopus trochilus</i>	1,707	871	49	Amber	●
Eurasian Treecreeper <i>Certhia familiaris</i>	90	46	49	Green	●
Mistle Thrush <i>Turdus viscivorus</i>	429	231	46	Amber	●
Linnet <i>Linaria cannabina</i>	750	408	46	Red	●
House Martin <i>Delichon urbicum</i>	693	422	39	Amber	●
Northern Lapwing <i>Vanellus vanellus</i>	480	303	37	Red	●
Tree Sparrow <i>Passer montanus</i>	125	80	36	Red	●
Common Sandpiper <i>Actitis hypoleucos</i>	48	31	35	Amber	●
Stock Dove <i>Columba oenas</i>	208	140	33	Amber	●

calandra and Dunlin *Calidris alpina* – as having declined by 100%. This is not strictly true, since all three species are still occasionally found in the breeding season in the Sheffield area. What is true is that these species have declined to such an extent that in 2008–11 none were recorded in 255 hours of counting. Along with Red-breasted Merganser *Mergus serrator*, Ruddy Duck *Oxyura jamaicensis*, Turtle Dove *Streptopelia turtur* and Twite *Linaria flavirostris*, they could well become locally extinct in the next few years.

Most of the species in table 1 are already known to be declining nationally and are duly Red- or at least Amber-listed as Birds of Conservation Concern (Eaton *et al.* 2009). But note that several Amber-listed species – such as Common Pochard, Common Redshank *Tringa totanus*, Whinchat *Saxicola rubetra*, Common Redstart *Phoenicurus*

phoenicurus and Eurasian Teal *Anas crecca* – showed a steeper decline than some of the Red-listed species; and that four Green-listed species are included too: Red-breasted Merganser, Tawny Owl *Strix aluco*, Eurasian Treecreeper *Certhia familiaris* and Sedge Warbler *Acrocephalus schoenobaenus*. We should perhaps be cautious about using a daytime survey to draw conclusions about Tawny Owls, while there is a possibility that the apparent decline in Treecreepers is due to differences in the skill levels of observers in the two periods (something which is explored further in the discussion). The lower numbers of both Red-breasted Mergansers and Sedge Warblers are more likely to be valid since they are matched by declines in the number of occupied tetrads (based on all sightings in those periods, not just the one-hour counts).

Some Red-listed species that breed in the

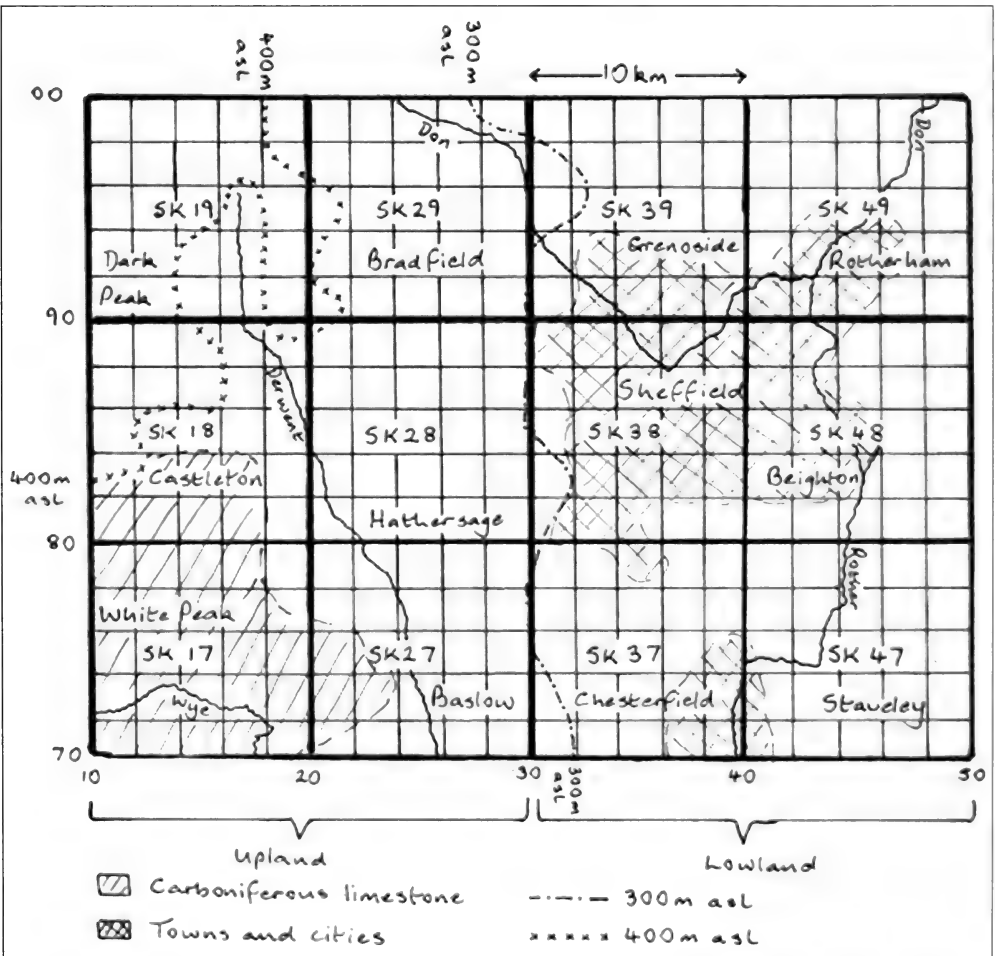


Fig. 2. The main geographical features of the recording area of the Sheffield Bird Study Group.



John Hawkins/FLPA

31. Yellow Wagtail *Motacilla flava*, Shropshire, May 2012. Within the Sheffield study area, on the limestone meadows of the White Peak, the Yellow Wagtail went from being widespread to completely absent in just a few years.

Sheffield area do not appear in table 1. There are three possible reasons for this: because their apparent decline was less than 33% (Ring Ouzel *Turdus torquatus*, Song Thrush *T. philomelos*); because their numbers were so low that the sample size was tiny (Marsh Tit *Poecile palustris*, Hawfinch *Coccothraustes coccothraustes*); or, in the case of the Grasshopper Warbler *Locustella naevia*, because they actually increased between the two periods.

The picture of decline becomes even more striking when some of these changes are portrayed as 'maps' (or, more accurately, grids) showing the mean number counted per 25 hours in each of the 12 10-km squares. Since they are based on what birdwatchers find during a one-hour walk, these grids show dramatically how the likelihood of encountering certain species has changed.

The grids that follow should be studied in conjunction with fig. 2, which shows the nature of the area covered. It is helpful to remember that the SBSG recording area is split almost equally between upland and lowland. The western half of each species grid shows what is happening in relatively high-altitude areas (more than 300 m above sea level) in the Peak District, including the White Peak (carboniferous limestone) and the Dark Peak (gritstone). The eastern half shows lower-lying areas around the city of Sheffield,

the towns of Rotherham and Chesterfield and the valleys of the Don and Rother.

Declining migrants

Bird Atlas 2007–11 has already highlighted the fact that several of the species which have declined recently are summer migrants that winter in the humid zone of West Africa. The scale of some of these changes in the Sheffield area is shown in fig. 3.

The Tree Pipit *Anthus trivialis* and Whinchat *Saxicola rubetra* have both disappeared more or less completely from the lowland half of the Sheffield area (the one Whinchat counted there is likely to have been a migrant), and have also declined markedly in their former strongholds in the upland areas to the west of Sheffield. Conversely, the Yellow Wagtail *Motacilla flava* is clinging on to the east of the city but has disappeared from the White Peak of Derbyshire (SK17) where it was formerly one of the characteristic species of limestone meadows. There have been no reports at all of Yellow Wagtails on these limestone plateaux since 2008 (Hill & Dale 2009, 2010; Hill 2011, 2012, 2013). The Common Cuckoo *Cuculus canorus* has declined throughout the area and has practically disappeared from the City of Sheffield (SK38) and the areas in and around Chesterfield (SK37).

Fig. 3 also shows the dramatic declines in

Tree Pipit 1988–90

58	46	22	4
34	37	1	0
14	46	0	1

Whinchat 1988–90

13	16	2	2
8	26	0	0
5	16	0	0

Yellow Wagtail 1988–90

0	1	0	4
14	0	0	2
41	2	0	4

Common Cuckoo 1988–90

7	32	8	5
12	18	10	13
3	23	15	9

Common Redstart 1988–90

28	18	2	0
38	29	0	0
62	46	0	0

Wood Warbler 1988–90

11	12	1	0
3	18	7	0
1	10	4	0

Pied Flycatcher 1988–90

1	2	0	0
1	2	2	0
2	0	0	0

Spotted Flycatcher 1988–90

1	2	2	1
23	12	1	1
24	17	0	4

Willow Warbler 1988–90

81	259	193	131
188	184	83	92
215	208	127	160

Tree Pipit 2008–11

6	5	0	0
7	5	0	0
0	8	0	0

Whinchat 2008–11

7	0	0	0
2	7	0	0
0	5	0	1

Yellow Wagtail 2008–11

0	0	0	6
0	0	0	0
0	0	0	4

Common Cuckoo 2008–11

4	8	2	1
2	3	0	1
1	8	0	2

Common Redstart 2008–11

3	4	0	0
3	2	0	0
28	16	0	0

Wood Warbler 2008–11

0	0	1	0
1	0	0	0
0	2	2	0

Pied Flycatcher 2008–11

0	1	0	0
1	0	0	0
0	1	0	0

Spotted Flycatcher 2008–11

13	0	0	0
4	3	1	0
4	0	0	1

Willow Warbler 2008–11

97	121	73	31
130	115	10	64
89	93	29	120

Grey Partridge 1988–90

0	0	1	8
1	2	0	30
3	2	13	43

Yellowhammer 1988–90

0	34	101	88
2	32	44	173
10	23	133	226

Skylark 1988–90

40	42	58	56
129	68	13	112
223	86	58	109

Tree Sparrow 1988–90

0	0	7	23
4	0	0	36
0	0	17	62

Common Redshank 1988–90

0	0	0	5
0	5	0	20
0	0	0	2

Common Snipe 1988–90

1	3	0	4
1	14	0	5
0	5	0	0

Northern Lapwing 1988–90

13	35	16	105
62	81	6	56
51	34	52	40

Willow Tit 1988–90

0	3	7	11
0	0	1	10
0	1	2	10

Lesser Redpoll 1988–90

33	30	3	4
21	30	1	1
0	20	0	0

Common Starling 1988–90

0	98	417	290
96	150	418	538
213	121	392	304

House Sparrow 1988–90

3	38	589	348
82	67	467	685
154	35	448	435

Grey Partridge 2008–11

3	0	0	6
0	3	0	4
0	0	0	7

Yellowhammer 2008–11

0	22	26	29
0	1	13	60
2	14	33	59

Skylark 2008–11

3	32	27	46
50	34	12	50
59	84	33	76

Tree Sparrow 2008–11

0	2	26	15
16	6	0	14
0	1	4	12

Common Redshank 2008–11

0	0	0	1
0	0	0	0
0	0	0	2

Common Snipe 2008–11

0	7	0	0
0	9	0	0
0	0	0	0

Northern Lapwing 2008–11

19	33	14	82
3	86	1	20
0	13	35	39

Willow Tit 2008–11

0	0	1	2
0	0	0	2
1	1	0	7

Lesser Redpoll 2008–11

0	9	0	0
2	0	0	0
0	8	0	0

Common Starling 2008–11

0	35	177	246
12	51	220	81
98	4	223	136

House Sparrow 2008–11

0	75	172	180
74	46	221	382
239	59	306	190

Fig. 3. The numbers of birds counted per 25 hours in twelve 10-km squares in the Sheffield area: declining migrant species.

three migrant species particularly associated with upland broadleaf woodlands: Common Redstart, Wood Warbler *Phylloscopus sibilatrix* and Pied Flycatcher *Ficedula hypoleuca*. The decline of the Pied Flycatcher shown here matches the picture in the rest of the UK, where this species decreased by 53% during 1995–2012 (Hayhow *et al.* 2014), but this has not

Fig. 4. The numbers of birds counted per 25 hours in 12 10-km squares in the Sheffield area: declining non-migrant species.



David Tipling/FLPA

32. Skylark *Alauda arvensis*, Norfolk, April 2008. Skylarks are still widespread around Sheffield so the changes in the population are not so obvious on distribution maps, but this analysis shows how the numbers have fallen.

previously been demonstrated locally. Indeed, Wood & Hill (2013) reported that between 1975–80 and 2005–08, Pied Flycatchers showed a 336% increase in the number of occupied tetrads, while the *Derbyshire Bird Report* (2012) suggested that numbers have recently been at their highest-ever levels. However, much of the increase reported by Wood & Hill (2013) could have occurred before the 1988–90 survey, so the decline suggested here may not be incompatible with their findings. The Spotted Flycatcher *Muscicapa striata* has almost completely disappeared from lowland Sheffield and declined substantially in all the upland areas to the west of the city except SK19 (Derwentdale). Similarly, the Willow Warbler *Phylloscopus trochilus* has declined throughout the area except in SK19, the 10-km square which includes that part of the study area at the highest altitude. This matches the findings of *Bird Atlas 2007–11*, which showed the Willow Warbler to be increasing in abundance in the hillier and more northerly parts of Britain but declining in lowland England.

Declining non-migrant species

Fig. 4 shows the grids for a group of declining species that are either resident or short-distance migrants. As highlighted in *Bird Atlas*

2007–11, many of these are either farmland birds or waders. The grids in fig. 4 also illustrate the decline of Willow Tit *Poecile montana*, Lesser Redpoll *Acanthis cabaret*, Common Starling *Sturnus vulgaris* and House Sparrow *Passer domesticus* in the Sheffield area.

The decline in the Grey Partridge *Perdix perdix* has been most notable in the lowland areas around the Rother Valley (SK47 and SK48), whereas Skylarks *Alauda arvensis* have shown the greatest losses in the uplands in the far west of the study area. In fact, they have almost disappeared from the moors around Derwentdale (SK19), while the meadows of the limestone plateaux (SK17) can no longer be regarded as their stronghold. The disappearance of Yellowhammers *Emberiza citrinella* from upland areas was shown in the distribution maps in Wood & Hill (2013) but fig. 4 shows an even more striking decline in the lower-lying areas east of Sheffield. The data for Tree Sparrow *Passer montanus* show a more conflicting picture: the species seems to have increased in some upland areas while also showing marked declines in the lowland farmland down the eastern flank of the study area.

Of Sheffield's breeding waders, both

Dunlin *Calidris alpina* and Common Redshank *Tringa totanus* have disappeared almost completely from the moors, although the Redshank clings on, in smaller numbers, around the valleys of the Don and Rother. The Common Snipe *Gallinago gallinago* has effectively gone from lowland areas and become confined to its key breeding areas on the edges of the moorland. The most startling aspect of the Northern Lapwing *Vanellus vanellus* grids is the extent to which this species has disappeared from the limestone

plateaux that make up most of SK17 (White Peak) and about a third of SK18 (Castleton).

The Willow Tit had already declined substantially prior to 1988 but fig. 4 shows that losses have continued, leaving just a few in the lowland areas to the east of Sheffield and hardly any elsewhere. Lesser Redpolls have disappeared from lowland Sheffield to the extent that, in this survey, none at all were counted in 363 TTVs in the eastern half of the area. Moreover, their decline in the western half of the study area is more striking

here than shown in the distribution map in Wood & Hill (2013). Starlings seem to have declined most markedly in uplands west of Sheffield, especially in SK27 (Baslow) where, within 20 years, the number counted, on average, has changed from five per hour to one every five hours.

Increasing species

Table 2 shows the species that have shown the greatest increase in numbers counted since 1988–90. A number of ‘new’ species have recently become established in the Sheffield area, including Greylag Goose *Anser anser*, Common Buzzard *Buteo buteo*, Common Raven *Corvus corax*, Mandarin Duck *Aix galericulata*, Common Tern *Sterna hirundo* and Goosander *Mergus merganser*. Such new arrivals are easily noticed

	Number counted		
	1988–90	2008–11	% increase
Greylag Goose <i>Anser anser</i>	0	89	new
Common Buzzard <i>Buteo buteo</i>	0	30	new
Common Raven <i>Corvus corax</i>	0	23	new
Mandarin Duck <i>Aix galericulata</i>	0	15	new
Common Tern <i>Sterna hirundo</i>	0	13	new
Goosander <i>Mergus merganser</i>	0	5	new
European Stonechat <i>Saxicola rubicola</i>	1	45	4,400
Great Cormorant <i>Phalacrocorax carbo</i>	1	21	2,000
Gadwall <i>Anas strepera</i>	3	44	1,367
Grasshopper Warbler <i>Locustella naevia</i>	1	9	800
Eurasian Nuthatch <i>Sitta europaea</i>	13	112	762
Mute Swan <i>Cygnus olor</i>	20	142	610
Reed Warbler <i>Acrocephalus scirpaceus</i>	6	41	583
Common Chiffchaff <i>Phylloscopus collybita</i>	111	406	266
Long-tailed Tit <i>Aegithalos caudatus</i>	103	370	259
Goldfinch <i>Carduelis carduelis</i>	326	1,053	223
Canada Goose <i>Branta canadensis</i>	182	582	220
Red-legged Partridge <i>Alectoris rufa</i>	24	65	171
Grey Heron <i>Ardea cinerea</i>	29	73	152
Herring Gull <i>Larus argentatus</i>	5	12	140
Red Grouse <i>Lagopus lagopus</i>	89	194	118
Common Pheasant <i>Phasianus colchicus</i>	260	552	112
Mallard <i>Anas platyrhynchos</i>	754	1,496	98
Wood Pigeon <i>Columba palumbus</i>	1,615	3,181	97
Carrion Crow <i>Corvus corone</i>	615	1,132	84
Common Whitethroat <i>Sylvia communis</i>	174	317	82
European Golden Plover <i>Pluvialis apricaria</i>	26	45	73
Blackcap <i>Sylvia atricapilla</i>	276	459	66
Eurasian Curlew <i>Numenius arquata</i>	123	199	62
Great Spotted Woodpecker <i>Dendrocopos major</i>	56	86	54
Western Jackdaw <i>Corvus monedula</i>	1,297	1,976	52
Dipper <i>Cinclus cinclus</i>	11	16	45
Siskin <i>Spinus spinus</i>	41	57	39
Collared Dove <i>Streptopelia decaocto</i>	312	427	37
Lesser Whitethroat <i>Sylvia curruca</i>	20	27	35
Lesser Black-backed Gull <i>Larus fuscus</i>	18	24	33
Great Tit <i>Parus major</i>	678	896	32
Green Woodpecker <i>Picus viridis</i>	19	25	32

Greylag Goose 1988–90	Greylag Goose 2008–11	Gt Sp Woodpecker 1988–90	Gt Sp Woodpecker 2008–11
0 0 0 0	0 0 3 38	0 4 15 4	3 15 15 5
0 0 0 0	0 0 2 58	3 4 8 5	1 8 10 7
0 0 0 0	0 0 0 3	2 9 4 5	8 5 13 10
Common Buzzard 1988–90	Common Buzzard 2008–11	Common Pheasant 1988–90	Common Pheasant 2008–11
0 0 0 0	6 1 2 4	3 22 27 20	8 103 86 36
0 0 0 0	3 4 0 4	13 16 19 20	20 87 32 36
0 0 0 0	3 5 2 1	23 70 35 33	29 66 62 63
European Stonechat 1988–90	European Stonechat 2008–11	Carrion Crow 1988–90	Carrion Crow 2008–11
0 0 0 0	7 5 0 0	6 50 57 17	0 97 137 110
0 1 0 0	2 3 0 0	71 88 67 49	65 73 180 96
0 0 0 0	0 30 0 0	94 60 106 49	178 112 133 120
Eurasian Nuthatch 1988–90	Eurasian Nuthatch 2008–11	Canada Goose 1988–90	Canada Goose 2008–11
0 0 0 0	0 7 32 4	6 9 25 1	68 28 17 71
0 1 1 0	5 6 30 4	0 6 1 87	101 52 20 81
3 8 0 1	11 5 21 9	0 16 75 13	0 18 27 184
Common Chiffchaff 1988–90	Common Chiffchaff 2008–11	Mute Swan 1988–90	Mute Swan 2008–11
1 16 21 1	3 33 80 42	0 0 0 2	0 0 2 101
4 3 25 17	8 27 44 64	0 0 0 18	0 0 4 29
0 10 17 16	23 22 69 66	0 0 0 3	4 0 10 21
Long-tailed Tit 1988–90	Long-tailed Tit 2008–11	Common Whitethroat 1988–90	Common Whitethroat 2008–11
0 11 24 18	4 10 64 60	0 1 14 46	0 14 24 81
5 4 11 21	2 12 54 56	0 1 6 45	2 4 11 81
3 3 12 9	13 72 23 55	2 7 21 63	10 15 15 105
Goldfinch 1988–90	Goldfinch 2008–11	Eurasian Curlew 1988–90	Eurasian Curlew 2008–11
0 38 40 55	0 115 188 136	15 29 4 0	24 52 2 0
34 15 14 26	103 45 96 149	13 32 0 0	26 75 0 0
56 39 6 36	115 74 119 75	17 22 0 0	17 16 2 0

Fig. 5. The numbers of birds counted per 25 hours in 12 10-km squares in the Sheffield area: increasing species.

but the increases in Eurasian Nuthatch *Sitta europaea*, Common Chiffchaff *Phylloscopus collybita*, Long-tailed Tit *Aegithalos caudatus*, Goldfinch *Carduelis carduelis* and Common Whitethroat *Sylvia communis* have been less obvious. Similarly, it is easy to forget that species such as Blackcap *S. atricapilla* and Great Spotted Woodpecker *Dendrocopos major* were much scarcer 20 years ago, while you would never guess from standard distribution maps that numbers of species such as Common Pheasant *Phasianus colchicus*, Mallard *Anas platyrhynchos*, Wood Pigeon *Columba palumbus* and Carrion Crow *Corvus corone* have doubled in the last 20 years. Other species for which the increases may not have been so obvious include Red-legged Partridge *Alectoris rufa*, Western Jackdaw *Corvus monedula*, Dipper *Cinclus cinclus*,

Collared Dove *Streptopelia decaocto*, Lesser Whitethroat *S. curruca* and Great Tit *Parus major*. The apparent increase in European Golden Plovers *Pluvialis apricaria* may have been exaggerated because of one record of 15 in one tetrad on 14th May, which might refer to a flock of passage birds. If that record is excluded, then the numbers of Golden Plovers in both periods were actually more or less similar. Grids showing how a selection of these species have increased across the Sheffield area are presented in fig. 5.

Fig. 5 shows the extent to which Greylag Geese have become established in the lowland parts of the study area and that Common Buzzards are now found throughout the area except in urban and sub-urban Sheffield (SK38). The numbers of Buzzards are still not particularly high, however,



33. Common Whitethroat *Sylvia communis*, Merseyside, April 2007. By counting the birds during Tetrad Atlas surveys we can see the extent of the Whitethroat's recent increase in different parts of the Sheffield area.

typically less than one bird counted per five hours of observation. The relative lack of Buzzards is particularly noticeable in SK29 (Bradfield), an area where the populations of Northern Goshawks *Accipiter gentilis*, Peregrine Falcons *Falco peregrinus*, Hen Harriers *Circus cyaneus* and Ravens have all been decimated, almost certainly as a result of persecution by gamekeepers (RSPB 2006). In all the TTVs carried out in SK29 in 2008–11, there were just two Buzzards counted in 66 hours of study.

Since the 1980s the European Stonechat *Saxicola rubetra* has become a regular breeder in the uplands west of Sheffield, no doubt benefiting from a run of relatively mild winters. The cold winter of 2009/10 and the exceptionally cold December in 2010 did cause a reduction in Stonechat numbers but they are still widespread. The grids also show the change in Eurasian Nuthatch numbers clearly. This species is now so commonly recorded that it is surprising to realise how scarce it was only 20 years earlier. To a lesser extent, the same is true of Chiffchaff, Long-tailed Tit, Goldfinch and Great Spotted Woodpecker (note that in 1988–90 there were no parts of the study area where Chiffchaff

and Long-tailed Tit were recorded at a rate of more than one per hour). The resurgence of Chiffchaffs in the limestone dales (SK17) and around Rotherham (SK49) is particularly striking, as is the increase in Goldfinches in SK37 (Chesterfield).

Common Pheasants have increased in number almost uniformly across the area but in the case of the Carrion Crow the greatest increase has been in urban Sheffield and Rotherham (SK38 and SK39), while this species appears to have declined on the high moors of SK19 (Derwentdale). The increase in Canada Geese

Branta canadensis comes as no surprise, yet Mute Swan *Cygnus olor* numbers have risen at an even greater rate. The resurgence in Common Whitethroat numbers, especially in the limestone dales (SK17) and moorland fringes (SK27 and SK29), was particularly noticeable in the summer of 2010. Finally, the increase in the numbers of Eurasian Curlews *Numenius arquata* is at odds with the national trend, which has shown a 44% decline since 1995; the marked declines in some parts of the UK, especially the uplands of Wales, have not (yet) been reflected in the Sheffield area.

Discussion

TTV surveys as an alternative to standard tetrad atlases

Bird clubs that wish to study changes in their local bird populations might consider asking their members to carry out TTVs in each tetrad instead of trying to find every breeding bird over a period of several years, the standard protocol for most tetrad atlases. The TTV method has three main advantages:

1. It demands less time, just one hour per tetrad (though two one-hour visits per tetrad would be even more valuable). This might make it more feasible for the survey

Table 3. Population changes in the Sheffield area calculated using two methods: the number of occupied tetrads and the number of birds counted. Examples of species in which the counted birds show greater declines.

	% decrease in occupied tetrads from 1975–80 to 2003–08	% decrease in no. of birds counted from 1988–90 to 2008–11
Common Redshank <i>Tringa totanus</i>	43	93
Wood Warbler <i>Phylloscopus sibilatrix</i>	22	92
Tree Pipit <i>Anthus trivialis</i>	36	88
Grey Partridge <i>Perdix perdix</i>	46	78
Yellowhammer <i>Emberiza citrinella</i>	26	75
Common Redstart <i>Phoenicurus phoenicurus</i>	15	74
Little Grebe <i>Tachybaptus ruficollis</i>	9	69

to be repeated more frequently, or carried out by fewer people.

- The results are more directly comparable since the amount of effort given to each tetrad (one hour) is the same between surveys. This cannot be said of surveys in which the amount of time spent in each tetrad is unlimited and unknown between surveys.
- The results show changes in numbers, which is a more sensitive indicator of change than distribution.

Table 3 shows a selection of species in this study for which the declines seem to be greater when based on count data rather than changes in distribution. It shows that, for example, Wood Warblers showed a decline of 22% in range but of 92% in the numbers counted. Note that in some cases the

differences may be exaggerated because the declines are calculated over different periods of time.

Table 4 shows that counts of birds were particularly useful in highlighting species that were increasing in number even if their range was scarcely changing. For most of the species in this table, the change in the proportion of occupied territories was less than 10% but the count data showed more clearly the extent of their population increase. Even where increases in range were obvious, such as for Chiffchaff and Long-tailed Tit, the extent of the change was more evident from the TTV count data.

The drawback of using TTVs is that the birds counted in one hour will be just a sample of the birds actually present in an area, since even the best observers will miss

Table 4. Population changes in the Sheffield area calculated using two methods: the number of occupied tetrads and the number of birds counted. Examples of species in which the increase in birds counted was obviously greater than their change in range.

	% change in occupied tetrads from 1975–80 to 2003–08	% increase in no. of birds counted from 1988–90 to 2008–11
Reed Warbler <i>Acrocephalus scirpaceus</i>	-8	583
Common Chiffchaff <i>Phylloscopus collybita</i>	73	266
Long-tailed Tit <i>Aegithalos caudatus</i>	46	259
Goldfinch <i>Carduelis carduelis</i>	6	223
Red-legged Partridge <i>Alectoris rufa</i>	-9	171
Red Grouse <i>Lagopus lagopus</i>	-1	118
Mallard <i>Anas platyrhynchos</i>	8	98
Wood Pigeon <i>Columba palumbus</i>	1	97
Carrion Crow <i>Corvus corone</i>	3	84
Common Whitethroat <i>Sylvia communis</i>	25	82
European Golden Plover <i>Pluvialis apricaria</i>	-1	73
Blackcap <i>Sylvia atricapilla</i>	21	66
Eurasian Curlew <i>Numenius arquata</i>	-4	62
Western Jackdaw <i>Corvus monedula</i>	18	52
Sand Martin <i>Riparia riparia</i>	-72	9

Richard Hill



34. A view over the centre of Sheffield from Skye Edge, Yorkshire; January 2013. Not only have species such as Common Cuckoo, Meadow Pipit and Wood Warbler disappeared from the Sheffield 10-km square (SK38) but others – such as Common Starling, House Sparrow, Common Swift, House Martin, Willow Warbler, Eurasian Treecreeper and Linnet – have all shown declines of 50% or more. Meanwhile, species such as Eurasian Nuthatch, Goldfinch, Common Pheasant and Carrion Crow have become much more numerous in these urban and suburban areas.

some species; the range of birds counted will depend to some extent on the timing of the visit (counts made in April will have a different range of species from counts made in July) as well as species detectability. This issue could be minimised by the use of two TTVs per tetrad, preferably in April and June, but it still means that if a species is not recorded in a tetrad it could simply have been overlooked in the limited time available. Although the results of just one tetrad can be misleading, the data presented here for the Sheffield area combine the results of many tetrads (most of the numbers on the grids are based on more than 20 hours of counts in each 10-km square), which offers a more reliable picture.

88	89	99	97
78	88	107	108
95	82	99	85

Fig. 6. Mean number of species per hour counted in 2008–11 (expressed as a percentage of the 1988–90 figure), in the 12 10-km squares of the Sheffield area.

Observer bias

Another issue is that the use of TTVs is particularly prone to observer bias. The number of species found, and the numbers of each counted, can vary greatly according to the skills of the observer. Fig. 6 shows that in most 10-km squares, fewer species were found per tetrad in 2008–11 than in 1988–90, though often the difference is marginal.

Is this because there really are fewer species per tetrad now compared with 20 years earlier or is it simply that the observers were less observant? The only direct comparison we can make is in those tetrads that were counted by the same observer. In 23 tetrads visited by the author in both surveys, the number of species recorded increased, on average, from 30 to 34. This suggests that, if anything, there should now be *more* species found in each tetrad than there were 20 years

1988–90				2008–11			
4	3	0	2	9	9	2	3
3	4	4	0	9	8	1	3
1	3	1	1	1	11	1	3

Fig. 7. The number of tetrads in each 10-km square in which less than 40% of the expected species were found in the best one-hour count.

ago. If true, the decrease noted overall is more likely to be a reflection of birds being missed by some observers in the more recent survey.

Further evidence is shown in fig. 7. Here, data from Wood & Hill (2013) were used to calculate how many species should have been countable in each tetrad. If a one-hour count finds less than 40% of that number, it suggests that many species are being missed (experienced observers counted, on average, 55–65% of that number in one hour). Fig. 7 shows the distribution of such under-represented tetrads in each survey. Clearly there were more such tetrads in the later survey, especially in the western half of the area.

This suggests that more species were overlooked during a greater proportion of TTVs in 2008–11, especially in the western half of the area. Consequently, the reduction in the numbers of species found in 2008–11, as shown in fig. 6, may be largely an artefact that relates to observer bias. This should be borne in mind when studying the species grids and the data for unobtrusive species such as Treecreeper and Garden Warbler *Sylvia borin*, most easily missed by less experienced observers. Conversely, it would seem that any differences observed in the eastern half of the area, as well as any increases noted between 1988–90 and 2008–11, are unlikely to be due to observer bias.

Gains and losses

Are we really seeing fewer birds now than 20 years ago, as is commonly supposed? The evidence from the Sheffield area is that some species are increasing, some decreasing, some disappearing and some colonising but, on balance, are we losing more than we are gaining?

Wood & Hill (2013) pointed out that the number of species probably or confirmed breeding in the Sheffield area increased from 114 in 1975–80 to 134 in 2003–08. Some of the ‘new’ species (Egyptian Goose *Alopochen aegyptiaca*, Rose-ringed Parakeet *Psittacula krameri*, Woodlark *Lullula arborea*, Cetti’s Warbler *Cettia cetti*, Dartford Warbler *Sylvia undata* and Firecrest *Regulus ignicapilla*) were not observed during any of the 821 TTVs carried out for *Bird Atlas 2007–11* in the Sheffield area. Others (such as Cormorant, Gadwall and Peregrine) were already present around Sheffield by the time of the 1988–90 survey and other species (such as Woodcock *Scolopax rusticola*, Water Rail *Rallus aquaticus*, Barn Owl *Tyto alba* and Long-eared Owl *Asio otus*) were simply missed during the TTVs in 2008–11. Hence, the number of species recorded during the 255 ‘best’ one-hour counts was almost unchanged (121 in 1988–90, 119 in 2008–11). So, in the Sheffield area as a whole, the number of species missing in 2008–11 was almost matched by the number of new additions.

Fig. 8 shows how many species have



Richard Hill

35. Looking north from Thrybergh Reservoir, Yorkshire, September 2012. Birds such as Turtle Dove, Common Cuckoo, Lesser Redpoll and Tree Pipit have practically disappeared from these lowland areas, while others such as Yellowhammer and Willow Tit are in decline, yet species such as Goldfinch, Long-tailed Tit, Common Chiffchaff and Carrion Crow have increased spectacularly.

Richard Hill



36. Ladybower Reservoir, Derbyshire, May 2014. Tree Pipit, Common Redstart, Skylark and even Meadow Pipit have shown shocking declines in and around Derwentdale, where Wood Warblers, Lesser Redpolls and Red-breasted Mergansers have all but disappeared. However, in contrast to the situation in the rest of the Sheffield area, Willow Warblers seem to be holding their own and Spotted Flycatchers have actually increased. Long-tailed Tits, European Stonechats, Common Buzzards and Great Spotted Woodpeckers can now be found in this area, along with dozens of Canada Geese.

increased or decreased to different degrees between 1988–90 and 2008–11. The overall picture is that more species have decreased or disappeared (67) than have increased or colonised (55) and that, in general, the

decreasing species have decreased to a greater extent. However, it might reasonably be argued that the two halves of the graph are reasonably well balanced – and that increases and decreases are comparatively equally matched.

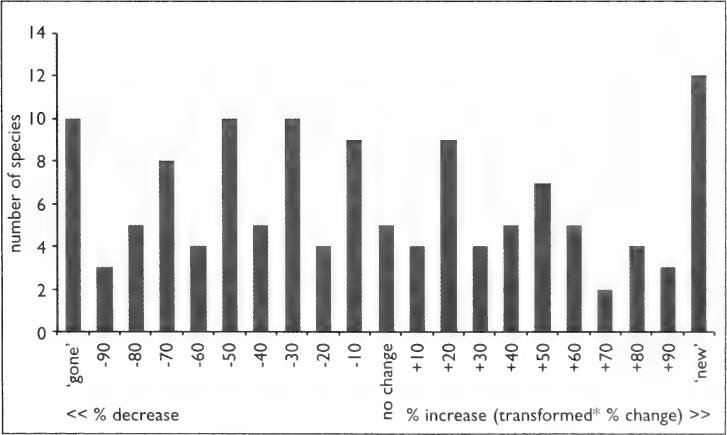


Fig. 8. Number of species whose numbers have changed by different percentages in the Sheffield area between 1988–90 and 2008–11: all species. * Note that while a four-fold decline is a 75% decrease, a four-fold increase is 300%. Therefore, to make the % increases equivalent to the % decreases they have been transformed using natural logarithms. For example, on a natural log scale, a 100% increase (two-fold) is equivalent to a 50% decrease (also two-fold) and is therefore plotted here as a 50% increase, for ease of interpretation.

It is difficult to judge whether, on average, we are now observing fewer species in an hour compared with 20 years ago. Fig. 6 suggests that this may be the case, especially in the upland areas to the west of Sheffield, although this may be confounded to some extent by differences in observer skills. The same anomaly could apply when comparing the total number of birds counted in both surveys. On average, there were 171 birds counted per hour in

1988–90 but only 154 per hour in 2008–11.

More obvious differences emerge when we consider songbirds only (defining songbirds as all passerines except corvids). Fig. 9 shows that since 1988–90 almost twice as many songbird species have decreased (39) than have increased (20). On average there were 122 songbirds counted per hour in 1988–90 but only 94 per hour in 2008–11. This loss of songbirds has been compensated to some extent by the presence of greater numbers of other groups of species, especially ducks, geese, crows, pigeons and raptors.

Conclusions

The data presented here, based on counts rather than simple presence and absence, show that some of the changes in bird populations in the Sheffield area in the past 30 years have been even more dramatic than has already been described using standard atlas techniques. Intuitively, it may be surprising, even to active local birders, that the overall losses have been almost matched by the gains, although whether the new arrivals and flourishing species are valued as highly as the ones we have lost, or which are struggling, is a different matter entirely. It is clear that both atlasing and timed counts have strengths and weaknesses, but a greater awareness of these, and a clearer idea of the aims and objectives, may help survey planners to decide on their methodology.

Only a limited number of species grids could be presented here. For more maps and further discussion of changes in bird numbers in the Sheffield area see www.easybirder.co.uk/Blog.html

Acknowledgments

I am deeply indebted to all the volunteers who have counted birds and submitted their data to the Sheffield Bird Study Group (1988–90) and *Bird Atlas 2007–11*

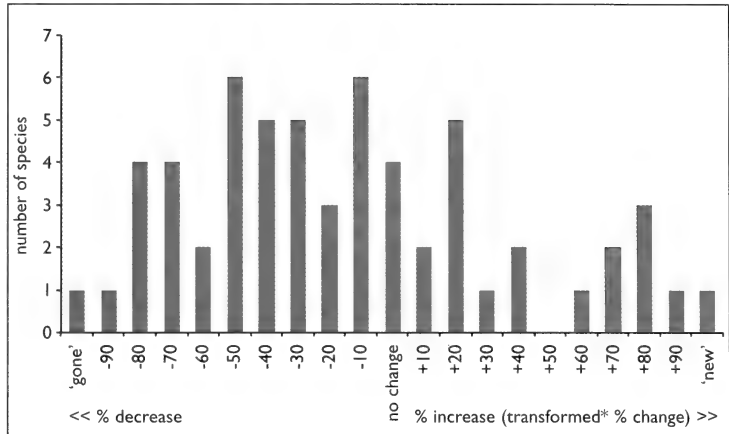


Fig. 9. Number of species whose numbers have changed by different percentages in the Sheffield area between 1988–90 and 2008–11: songbird species only. See footnote to fig. 8 for explanation of the transformation used.

(2008–11). Without their tireless efforts, information such as this simply would not be available. Thanks are also due to Simon Gillings and Peter Lack who helpfully passed on the data from the *Bird Atlas TTVs*, and to Andrew Beckerman for introducing me to the wonders of natural logarithms.

References

- Balmer, D., Gillings, S., Caffrey, B. J., Swann, R. L., Downie, I. S., & Fuller, R. J. 2013. *Bird Atlas 2007–11: the breeding and wintering birds of Britain and Ireland*. BTO Books, Thetford.
- Eaton, M. A., Brown, A. F., Noble, D. G., Musgrove, A. J., Hearn, R. D., Aebischer, N. J., Gibbons, D. W., Evans, A., & Gregory, R. D. 2009. Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *Brit. Birds* 102: 296–341.
- Frost, R., & Shaw, S. 2013. *The Birds of Derbyshire*. Liverpool University Press, Liverpool.
- Hayhow, D. B., Conway, G., Eaton, M. A., Grice, P. V., Hall, C., Holt, C. A., Kuepfer, A., Noble, D. G., Oppel, S., Risely, K., Stringer, C., Stroud, D. A., Wilkinson, N., & Wotton, S. 2014. *The State of the UK's Birds 2014*. RSPB, BTO, WWT, JNCC, NE, NIEA, NRW and SNH, Sandy.
- Hornbuckle, J., & Herringshaw, D. 1985. *Birds of the Sheffield Area*. Sheffield Bird Study Group, Sheffield.
- Hill, R. D. 2011. *Birds in the Sheffield Area 2010*. Sheffield Bird Study Group, Sheffield.
- 2012. *Birds in the Sheffield Area 2011*. Sheffield Bird Study Group, Sheffield.
- 2013. *Birds in the Sheffield Area 2012*. Sheffield Bird Study Group, Sheffield.
- & Dale, R. D. 2009. *Birds in the Sheffield Area 2008*. Sheffield Bird Study Group, Sheffield.
- & — 2010. *Birds in the Sheffield Area 2009*. Sheffield Bird Study Group, Sheffield.
- RSPB. 2006. *Peak Malpractice*. RSPB, Sandy.
- Wood, D., & Hill, R. D. 2013. *Breeding Birds of the Sheffield Area*. Sheffield Bird Study Group, Sheffield.

Dave Gosney, 15 Low Road, Sheffield S6 5FY; e-mail dave@easybirder.co.uk

Important Bird Areas

Montserrat

Steffen Oppel, Gerard Gray, James Daley,
Stephen Mendes, Calvin Fenton, Gemma
Galbraith, Shawn Daniel and James Millett

Abstract Montserrat is a small jewel of an island in the eastern Caribbean. After a major volcanic eruption in 1995, two-thirds of the island became uninhabitable, and today Montserrat is off the beaten track for most tourists. The island is easily accessible, however, and a range of habitats support a variety of interesting native biodiversity. Three hill ranges exist on the island, the southernmost being an active volcano and mostly devoid of vegetation. The Centre Hills, an area of semi-natural forest, is home to endemic species such as the Montserrat Oriole *Icterus oberi*, the Montserrat Galliwasp *Diploglossus montisserrati* (a skink), and the 'Mountain Chicken' *Leptodactylus fallax* (a frog). Besides the Centre Hills forest, there are dry scrublands in the northern hill range, coastal cliffs, and some unspoilt beaches with scenic reefs suitable for snorkelling and diving. The island's habitats suffer from the effects of multiple non-native species such as feral pigs, goats, cattle, rats and cats. Efforts to control these are under way, and the Centre Hills forest is protected. Protecting the forest on Montserrat is the most critical target both for native biodiversity and for water supply on the island.

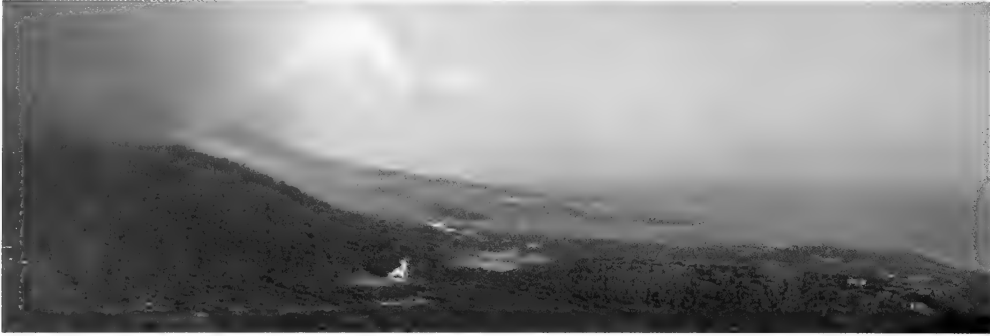
Introduction

Montserrat is a UK Overseas Territory located in the Lesser Antilles (16°45'N 62°12'W), an island chain in the West Indies lying between the Caribbean Sea and the Atlantic Ocean. Montserrat is approximately 16 km long and 11 km wide, and has a mostly rocky coastline of about 40 km, with a few sandy beaches. The island retains an 11-km² patch of tropical moist forest in the Centre Hills, which is home to an amazing array of native wildlife, but much of the forest cover has been lost through a combination of human activities and natural disasters.

On 18th July 1995, the Soufrière Hills volcano, which dominates the southern part of the island and which had lain dormant over a long period, sprang to life. Since then, several eruptions have destroyed Montserrat's former capital city of Plymouth and rendered the southern part of the island uninhabitable.



Fig. 1. Topography and key areas of Montserrat.



Steffen Oppel

37. View over the abandoned former capital of Plymouth, which was obliterated in 1997 by lava flows from the Soufrière Hills volcano (left), April 2014.

More than half of the island's population was forced to flee in 1997. Volcanic activity continues to the present day, and an 'exclusion zone' has been imposed to protect people from pyroclastic flows (fast-moving currents of hot gas and rock) and lahars (debris flows composed of volcanic material, rocks and water). Visitors are generally not permitted to enter the exclusion zone, but impressive views of the former capital and of the active volcano can be seen from the Centre Hills. A new town centre/market and port are currently being developed in the northern part of the island, and housing development continues to accommodate an increasing number of former residents returning to the island.

Montserrat has a tropical climate with average annual rainfall varying between c. 1,100 and 2,100 mm depending on where rainfall is measured: the hills receive much more rain than the lowlands. The wet season begins in April–May, and has two peaks, the second coinciding with the Atlantic hurricane season in August–September (Barclay *et al.* 2006). Rainfall over the past 110 years has been variable but the trend is neither increasing nor decreasing (Oppel *et al.* 2013).

Geography

Montserrat is one of a chain of volcanic islands, and lies about 40 km southwest of Antigua, 50 km southeast of Nevis, and 55 km northeast of Guadeloupe. Montserrat is about 104 km² in size and has three major hill ranges, all based on volcanic cones. The hill ranges increase in size from north to south. The Silver Hills, near the northern tip of the island, is the oldest of the three hill ranges and substantially lower and less

rugged than the other two; covered mostly in dry forest or thorny scrub, the hills are used as rangeland for goats and sheep. The Centre Hills, appropriately enough in the centre of the island, feature two extinct volcanic cones (Katy Hill and Baker Hill) rising up to 741 m asl. The Centre Hills are covered in lush forest and form the green lung, biodiversity hotspot and water reservoir of the island. They are rugged, with many narrow valleys, steep slopes and ridges, and numerous creeks that can swell to raging torrents within hours of heavy rain. In the south of the island, the currently active Soufrière Hills volcano is the largest and youngest of the volcanic cones and rises up to about 900 m asl.

The coastline of the island is mostly rocky, with cliffs rising 15–30 m above the sea. The east coast features one long sandy beach, and the west coast has six smaller coves with smooth-bottomed, sandy beaches. The largest shallow bay on the west coast is formed by an estuary, where the Belham River, which drains the Soufrière Hills, disgorges volcanic deposits into the sea.

The most prominent geographic feature of Montserrat is the currently active Soufrière Hills volcano, a volcano built up by layers of hardened lava rocks and volcanic ash that gradually accumulates magma in a volcanic dome until the dome collapses. These lava dome collapses occur usually every few years and produce large quantities of volcanic ash that can cover much of the island in layers of ash. As well as the dome collapses, there are constant tremors and earthquakes, rock falls, and vents of sulphur dioxide that obscure the top of the volcano in a yellowish-white cloud on most days of the year. Pyroclastic flows



38. The Centre Hills of Montserrat forms the largest forest area remaining on the island. Katy Hill (centre) is the highest point in the Centre Hills, and within easy walking distance of the new airport (foreground), April 2013.

can occur at any time without warning on any side of the volcano, and the existing river valleys are frequently modified by flash flooding following heavy rainfall (for current information check www.mvo.ms).

Besides the main island, Montserrat features the uninhabited Pinnacle Rocks, four rock pillars that broke off the cliffs on the north-eastern side of the island and now lie 30–60 m offshore. The small island of Redonda, about 20 km northwest of Montserrat, belongs to Antigua. Both Pinnacle Rocks and Redonda are important breeding and roosting sites for seabirds.

Human history and current economy

Owing to its easy accessibility, the island has been occupied by humans for several thousand years (Cherry *et al.* 2012). Christopher Columbus was the first European explorer to discover the island, in 1493, but it remained unimportant for Europeans until the early seventeenth century, when anti-Catholic violence in nearby Nevis forced a group of Irish slaves to settle in Montserrat, as it was named by Columbus. After fights between French and British colonialists, the island became a formal British colony in 1783.

The settlers built an economy based on the production of sugar, rum, arrowroot and Sea Island cotton, cultivated in large plantations that resulted in much of the natural vegetation on the island being cleared. The colonists began to import African slaves for

labour, a common practice on most Caribbean islands. By the late 1700s, numerous plantations had been developed on Montserrat. Many Irish people were also transported to the island, to work as slaves, indentured servants or exiled prisoners. On 17th March 1768, slaves rebelled but failed to achieve freedom, but the people of Montserrat today celebrate St Patrick's Day as a public holiday due to the slave revolt, and the island has a very proud Irish heritage.

During the nineteenth century, when Brazil and other nations began competing in the sugar trade, falling sugar prices had an adverse effect on the island's economy. Despite attempts by philanthropists to prove that it was economically viable to employ paid labour rather than slaves, the sugar and cotton industry vanished from the island and much of Montserrat was sold to its inhabitants, who established small subsistence farms and banana plantations. This pattern persists today: there is no large industry, just small farms growing crops mainly for local consumption.

Montserrat has been hit by two major natural disasters in the last three decades. On 17th September 1989, Hurricane Hugo damaged more than 90% of the structures on the island. Much of the native forest was felled by winds of more than 200 km/h. The tourist economy was severely damaged, but recovered within a few years, as did most of the native forest.

Then, in July 1995, the long-dormant

Soufrière Hills volcano began to erupt and ultimately buried the island's capital city, Plymouth, in more than 12 m of mud and volcanic ash. In 1997, further eruptions destroyed the airport and harbour, the capital was abandoned completely, and the southern part of the island became uninhabitable and was evacuated. All farms in the southern part of the island were abandoned, and in these chaotic circumstances many farmers left livestock (cows, pigs, sheep, goats, donkeys, horses) to fend for themselves. These animals subsequently established feral populations that have an important negative effect on the native biodiversity of Montserrat to the present day.

After the destruction of Plymouth and the disruption of the tourism-based economy, more than half of the human population left the island. Montserrat currently has a human population of approximately 5,000, down from 13,000 in 1994. Volcanic activity continues to the present day, and is expected to last for at least another 20 years (Sparks & Aspinall 2004; Scientific Advisory Committee 2012). The northern part of Montserrat has barely been affected by volcanic activity, and is gradually developing into the new business centre of the island, and a new airport was opened in 2005.

Since the eruption of the Soufrière Hills volcano, the Montserratian economy has been effectively halted. The island's operating budget is largely supplied by the UK Government and administered through the Department for International Development (DFID); it amounts to approximately £25–35 million per year. Additional income is secured through taxes, licence and other fees as well as customs duties levied on imported

goods, which include the majority of items available on the island. The agricultural export industry from the seventeenth and eighteenth centuries has ceased to exist, and today the only exports consist of raw materials (sand and gravel) for construction. However, besides generating abundant raw materials for construction, the volcanic activity creates geothermal energy. Work began in 2012 to harness the geothermal energy, with the aim to provide power for Montserrat that is not reliant on fossil fuels.

The agricultural sector has been affected by the lack of suitable land for farming and the destruction of crops. Tourism has been badly affected by the lack of docking facilities for cruise ships, which formed a major source of income in the early 1990s. Currently, fisheries are very small-scale artisanal fisheries targeting reef or larger pelagic fish using lines, pots, or hand-cast nets for local consumption. There are currently no commercial-scale exports of fish from the island. Prospects for the economy depend largely on developments in relation to the volcanic activity and on public-sector construction activity. The Montserrat Government aspires to revive the economy through building a new port and increasing the local population to around 9,000 inhabitants, which requires new housing and infrastructure to accommo-



Sorrel Jones

39. The active Soufrière Hills volcano dominates the southern part of Montserrat. Lava flows and other volcanic activity have since 1995 destroyed most of the forest, agricultural, and urban areas in the southern half of the island, March 2012.

Alistair Homer



40. The lush rainforest in the Centre Hills is the green lung of the island and a paradise for birdwatchers, April 2014.

date the relocation and return of emigrants. While these developments may help in recreating a new cultural centre of activity in the northern part of the island, and resuscitate some of the tourism, some developments are likely to adversely affect the remaining natural habitats on the island. For example, coastal mangroves and a small wetland in the Little Bay area have recently been sacrificed for the construction of a new port and

evergreen wet forest in the hills, to montane elfin forest on the highest peaks, sustained by the higher rainfall. Most natural forest areas were probably cleared during the plantation era, and the majority of the forest that exists today is therefore secondary. Nonetheless, Montserrat has two large semi-natural forest areas that together cover about 16% of the island's land area, and are key habitats for the native forest birds. Two IBAs have been identified that encompass

Steffen Oppel



41. Numerous clear streams and rivers run through the forest in the Centre Hills. The native Giant Ditch Frog *Leptodactylus fallax*, locally known as the 'Mountain Chicken', is most likely to be encountered along these streams, April 2013.

business centre, and areas currently earmarked for agricultural and housing development include valuable areas of dry forest.

Important Bird Areas

The natural vegetation on Montserrat is tropical forest, and the three existing IBAs encompass most of the forest remaining on the island. Forest types range from dry deciduous forest in the lowlands, through semi-deciduous and

the main forest areas in the Centre and South Soufrière Hills respectively, while a third IBA comprises several small stretches of riparian forest at lower elevations (for more information see www.birdlife.org/datazone/userfiles/file/IBAs/CaribCntryPDFs/montserrat_%28to_uk%29.pdf). Together the three IBAs cover approximately 1,645 ha (Hilton et al. 2008).

In the Centre Hills, the largest remaining forest block, native

trees are mixed with large non-native fruit trees, forming a dense and lush tropical forest. There are remnants of earlier agricultural endeavours and many of the non-native fruit trees are spread by native birds and feral livestock. The canopy is quite dense, generally 10–15 m high, with larger trees remaining in small gullies and narrow valleys where some of the older trees managed to survive Hurricane Hugo. Towards the higher slopes the trees grow more stunted and a very dense and gnarly forest, interspersed with tree-ferns and harbouring many lichens and mosses, covers the exposed ridges, which are often shrouded in cloud. At the lower margins of the Centre Hills, the forest grades into dry forest and xerophytic scrub, but only the eastern slopes of the Centre Hills exhibit an almost complete forest moisture gradient, since there are no settlements in the area. The Centre Hills form the main water catchment for the island, and water is abstracted from a series of small streams that drain the central valleys (locally referred to as ‘ghauts’). The entire Centre Hills forest, an area of 1,112 ha and 150–741 m asl, has been identified as an IBA (‘MS 002 Centre Hills’) as it is home to two Globally Threatened, restricted-range species (Montserrat Oriole *Icterus oberi* and Forest Thrush *Turdus lherminieri*) and nine other restricted-range species (Hilton *et al.* 2008).

The second forest IBA (‘MS 003 South Soufrière Hills’) is a small remnant in the South Soufrière Hills that remained intact after the volcanic eruption. The remaining

forest of the Soufrière Hills was entirely destroyed, and the existing remnant is in the volcanic exclusion zone and currently inaccessible. This IBA was centred on a 35-ha patch of forest (Hilton *et al.* 2008), but the actual forest remnant was estimated to be 269 ha in 2012 (Oppel *et al.* 2014a). The forest type and the bird fauna are similar to those of the Centre Hills, but the number of feral livestock is higher owing to a complete lack of hunting, which severely affects the natural regeneration of the forest and currently poses the biggest threat to this IBA. Consequently, the forest at lower elevations is extremely degenerated and only the forest between 450 and 750 m asl is still suitable for the two Globally Threatened, restricted-range species (Montserrat Oriole and Forest Thrush) and nine other restricted-range species that occur. Because this IBA is inaccessible, there is very little information about trends in bird populations, but a small population of Montserrat Orioles (94–234 individuals) was estimated to be present during the last survey in 2012 (Oppel *et al.* 2014a).

Most areas in the lowlands have been cleared for agriculture and settlement, and few of the original dry forests remain, but the third IBA on Montserrat encompasses a series of riparian forest remnants that extend from the Centre Hills into the lowlands and comprise a total of 498 ha (Hilton *et al.* 2006, 2008). These riparian forest strips (‘MS 001 Northern Forested Ghauts’), from sea level to 300 m asl, provide valuable forest habitat for species preferring lower altitudes, such as the



Steffen Oppel

42. View from the Belham River estuary in Old Road Bay over the Centre Hills (left) and the Soufrière Hills volcano (right). Ash plumes from the volcano can affect the forest in the Centre Hills, September 2010.

Forest Thrush and ten other restricted-range species (Hilton *et al.* 2008). This fragmented IBA is currently not legally protected, and because the riparian forest strips meander through a matrix of agricultural and residential areas, the IBA is highly vulnerable to ongoing development. However, owing to the substantial flood risk in these riparian areas, the construction of new residential areas has recently slowed.

Other habitats of biodiversity interest

The areas of Montserrat that have been permanently deforested consist of a variety of secondary habitats. In the Silver Hills, forest clearance and overgrazing have resulted in degraded scrub vegetation, with stunted dry forest patches only at the highest elevations. In the driest areas of the lowlands, the vegetation is xerophytic scrub, with many cacti, presumably a consequence of human alteration of the natural forest habitat. Similar vegetation exists in the lower areas of the South Soufrière Hills, where extensive grazing pressure by feral livestock has resulted in stunted scrub without any regeneration. The dry scrub vegetation is of some value for some native bird species, but most of the forest birds are absent from the secondary vegetation in the lowlands.

Besides the semi-natural forest and the degraded scrub vegetation, Montserrat has very few other natural habitats. Prior to the volcanic eruption, Fox's Bay Bird Sanctuary contained areas of saline lagoon and mangroves, but these were largely destroyed by pyroclastic flows. A very small, partly degraded saline lagoon and mangrove area persisted in the northern part of the island until March 2014, but was lost to development aimed at creating new harbour facilities and a new town centre. The Belham River estuary along the west coast of the island is a large beach with sandy flats, which are occasionally rearranged by sediments flowing out of the Soufrière Hills after every major rainfall event. This bay and river estuary formed the largest habitat for wetland birds on Montserrat in recent years, but lack of river flooding since 2011 has led to stabilisation and rapid succession of scrub vegetation. In April 2014, the river was dry and the estuary

mostly covered in scrub forest 2–3 m tall with virtually no wetland habitat. The beaches are mostly steep and sandy and provide virtually no intertidal habitat that could be used by wading birds.

The coastline has numerous cliffs which function as breeding habitat for seabirds, but the island's seabird populations are relatively small. In recent years, the more stable barren lava fields in the southern part of the island have been recolonised by Least Terns *Sternula antillarum*, but because the southern part of the island is generally inaccessible, very little information exists about habitats in that area.

The marine habitats of biodiversity interest are mainly coral reefs and seagrass beds, which occur discontinuously around the island's coastline. The reefs are typically made up of boulders and exposed benthic rocks, which provide a hard substrate for coral settlement. Hard and soft coral species, along with sponges, calcareous algae and other algal species, dominate the reefs. The reefs are inhabited by a diverse range of fish and marine invertebrates, which make them popular dive and snorkel sites. Closely associated with coral reefs are seagrass beds, which are present in most sandy bays and are dominated by *Halophila baillonis* (Midrib Seagrass), a short and broadleaved species forming thick mats along sand and silt. The seagrass beds provide nursery habitat for juvenile fish and also support a wide range of charismatic species such as stingrays and sea turtles.

The bird fauna of Montserrat

More than 140 bird species have been recorded on Montserrat. There are 33 resident breeding species, seven residents that may breed (but no nests or nesting attempts have yet been documented; table 1), while more than 50 Neotropical migrant species either occur on passage or use the island as a wintering area (Hilton *et al.* 2008). The migrant landbirds are very scarce relative to the resident birds, many of which are fairly common and easily observed on a visit to their preferred habitat.

Montserrat is important for two Globally Threatened bird species – the endemic Montserrat Oriole (Critically Endangered) and the Forest Thrush (Vulnerable), which

also breeds on Dominica, Guadeloupe and St Lucia – both of which are also restricted-range species. Despite its Globally Threatened status, the Forest Thrush is the third most common bird in the Centre Hills and the Montserrat population is likely to number a few thousand individuals. The Bridled Quail-Dove *Geotrygon mystacea* is native to the Lesser Antilles and Puerto Rico, and is of regional conservation concern owing to its dependence on forested habitats, which are disappearing rapidly from many islands. On Montserrat, the Bridled Quail-Dove is relatively common and can be encountered regularly on walks through the Centre Hills forest.

Other species of interest are 12 restricted-range species that occur on only a few islands in the Lesser Antilles (Stat- tersfield *et al.* 1998). The Lesser Antillean Bullfinch *Loxigilla noctis* is relatively common on Montserrat and easily seen in the dry lowland forest areas, while the Purple-throated Carib *Eulampis jugularis*, and Brown Trembler *Cinclocerthia ruficauda* are much more abundant in the mesic and wet forest of the Centre Hills. The Antillean Euphonia *Euphonia musica* is very scarce and is found primarily in the lower fringes of the Centre Hills near trees with mistletoe but it is uncertain whether it breeds on the island. The Mangrove Cuckoo *Coccyzus minor* is another common resident.

Table 1. List of resident breeding bird species on Montserrat with global conservation status (CR = Critically Endangered, VU = Vulnerable, LC = Least Concern). Restricted-range species are shown in bold type; * denotes regularly present on the island, but breeding has not been confirmed.

Bird species		Status
Audubon's Shearwater*	<i>Puffinus lherminieri</i>	LC
Red-billed Tropicbird	<i>Phaethon aethereus</i>	LC
White-tailed Tropicbird	<i>Phaethon lepturus</i>	LC
Magnificent Frigatebird*	<i>Fregata magnificens</i>	LC
Brown Booby	<i>Sula leucogaster</i>	LC
Brown Pelican	<i>Pelecanus occidentalis</i>	LC
Cattle Egret	<i>Bubulcus ibis</i>	LC
Green Heron	<i>Butorides virescens</i>	LC
Yellow-crowned Night Heron*	<i>Nyctanassa violacea</i>	LC
Common Gallinule*	<i>Gallinula galeata</i>	LC
Least Tern	<i>Sternula antillarum</i>	LC
Scaly-naped Pigeon	<i>Patagioenas squamosa</i>	LC
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	LC
Zenaida Dove	<i>Zenaida aurita</i>	LC
White-winged Dove*	<i>Zenaida asiatica</i>	LC
Common Ground-Dove	<i>Columbina passerina</i>	LC
Bridled Quail-Dove	<i>Geotrygon mystacea</i>	LC
Mangrove Cuckoo	<i>Coccyzus minor</i>	LC
Smooth-billed Ani	<i>Crotophaga ani</i>	LC
Antillean Nighthawk*	<i>Chordeiles gundlachii</i>	LC
Purple-throated Carib	<i>Eulampis jugularis</i>	LC
Green-throated Carib	<i>Eulampis holosericeus</i>	LC
Antillean Crested Hummingbird	<i>Orthorhynchus cristatus</i>	LC
American Kestrel	<i>Falco sparverius</i>	LC
Peregrine Falcon	<i>Falco peregrinus</i>	LC
Caribbean Elaenia	<i>Elaenia martinica</i>	LC
Grey Kingbird	<i>Tyrannus dominicensis</i>	LC
Caribbean Martin	<i>Progne dominicensis</i>	LC
Barn Swallow	<i>Hirundo rustica</i>	LC
Forest Thrush	<i>Turdus lherminieri</i>	VU
Scaly-breasted Thrasher	<i>Allenia fusca</i>	LC
Pearly-eyed Thrasher	<i>Margarops fuscatus</i>	LC
Brown Trembler	<i>Cinclocerthia ruficauda</i>	LC
Yellow Warbler	<i>Setophaga petechia</i>	LC
Bananaquit	<i>Coereba flaveola</i>	LC
Black-faced Grassquit	<i>Tiaris bicolor</i>	LC
Lesser Antillean Bullfinch	<i>Loxigilla noctis</i>	LC
Antillean Euphonia*	<i>Euphonia musica</i>	LC
Carib Grackle	<i>Quiscalus lugubris</i>	LC
Montserrat Oriole	<i>Icterus oberi</i>	CR

Since 1999, the landbirds have been monitored annually by a structured monitoring programme carried out by the Government of Montserrat's Department of Environment (DOE) with support from the RSPB and volunteers. This programme is designed to track changes in the abundance of most forest



43. Male Montserrat Oriole *Icterus oberi*, photographed in early 2007.

birds, and was initiated due to concerns over the Montserrat Oriole. The monitoring is ongoing and provides robust data about recent trends of the forest birds on the island (Dalsgaard *et al.* 2007; Oppel *et al.* 2014a). So far, only data for the Montserrat Oriole and the Forest Thrush have been analysed in any detail, and researchers or students interested in monitoring data for other species are encouraged to contact the authors.

Montserrat Oriole – the national bird

The islands in the Caribbean host nine New World orioles of the genus *Icterus*, of which four are endemic to single islands (Garrido *et al.* 2005; Price & Hayes 2009). The Montserrat Oriole is Montserrat's endemic national bird and was formerly found throughout the island's hill forests. The species has a typical sexual plumage dimorphism, with males having a glossy black head and back and yellow-orange belly, while females are more uniformly greenish-yellow.

The volcanic eruption that started in 1995 has destroyed about 60% of the Montserrat Oriole's habitat. There was very little information about the species prior to the vol-

canic eruption (Bond 1939; Arendt 1990), but concerns over habitat loss triggered an intensive research programme that delivered many critical insights into the status and natural history of the Montserrat Oriole.

In the first few years after the eruption, the Montserrat Oriole population in the Centre Hills dwindled rapidly (Arendt *et al.* 1999; Bowden *et al.* 2001; Hilton *et al.* 2003), but since about 2003 the population has stabilised and, despite annual fluctuations, there has been no downward trend over the past ten years (Dalsgaard *et al.* 2007; Oppel *et al.* 2014a). During the initial eruption, the oriole lost more than half of its natural forest habitat, which undoubtedly caused a major population decline, but the decline in the Centre Hills occurred years after the forest in the Soufrière Hills was lost. The current interpretation for this pattern is that, in 1995–97, when the volcanic eruption destroyed the Soufrière Hills forest, many birds may have escaped to the Centre Hills where they were found temporarily at high densities. Since the habitat could not support those densities, the Montserrat Oriole population gradually relaxed to the true carrying capacity of the Centre Hills, which means that the population size is currently lower than it was in 1997 (Hilton *et al.* 2003; Oppel *et al.* 2014a).

Safeguarding a species like the Montserrat Oriole, when the last remaining wild population is declining rapidly, is a challenging task. In the early 2000s, two parallel conservation measures were initiated to help us to understand more about the bird's natural history and identify possible causes of population declines, and to ensure that the species would survive further volcanic disasters. The RSPB led an intensive research programme on Montserrat between 1999 and 2005, which recruited and trained local forest rangers to study nesting habits and nest success, and the dispersal and survival of individually colour-ringed birds (Allcorn *et al.* 2012). Furthermore, a regular monitoring programme was initiated that provided the quantitative evidence that led to the designation of the Montserrat Oriole as 'Critically Endangered' (Hilton *et al.* 2003). This research revealed that Montserrat Orioles are quite productive breeders that can raise several broods in a

year (Allcorn *et al.* 2012), but that productivity is highly dependent on rainfall. In years with high rainfall, there may be more *Heliconia* inflorescences in the forest, which are an important feeding and perhaps drinking substrate for the orioles. The water-filled floral bracts of heliconias support a variety of small aquatic invertebrates, and greater availability of the flowers may be the reason why Montserrat Orioles can lay larger clutches and re-nest sooner after losing a nest in years with more rainfall (Oppel *et al.* 2013).

Nests are frequently lost to both invasive (Black Rat *Rattus rattus*) and native (Pearly-eyed Thrasher *Margarops fuscatus*) predators, but since the orioles can re-nest rapidly, predation rates are unlikely to limit the population. The volcano appears to be a greater limiting factor. Volcanic dome collapses led to major ashfall events in 2001, 2003, and 2010, covering the entire island in layers of fine volcanic ash. The ash is highly acidic and causes invertebrate mortality, which may lead to food shortages for the oriole. Additional health effects, which are known to occur in humans (e.g. respiratory problems), may also affect birds and the annual survival probability of Montserrat Orioles was reduced by about 25% in years when volcanic ash



Sorrel Jones

44. The female Montserrat Oriole *Icterus oberi* is less colourful than the male; April 2012.

covered the Centre Hills (Allcorn *et al.* 2012; Oppel *et al.* 2014b). Montserrat Orioles are fairly long-lived, compared with orioles from temperate North America (mean annual survival probability 0.7 and 0.5 respectively; Allcorn *et al.* 2012). Thus, environmental conditions that reduce the survival of adult birds have a greater effect on population dynamics than conditions that affect productivity. Our present understanding is that the Montserrat Oriole population fluctuates in



Alistair Homer

45. Montserrat Orioles *Icterus oberi* build a basket-shaped nest that is suspended from branches or the broad sturdy leaves of banana plants or heliconias; April 2014.

response to periodic population setbacks following ashfall events, but can recover in a few years when rainfall is high and productivity is above average. Currently, and with the Centre Hills forest remaining at its current size, the extinction risk for the Montserrat Oriole is relatively low (Oppel *et al.* 2014a,b).

Besides research, the second conservation measure adopted in the early 2000s was the establishment of a captive population. The Durrell Wildlife Conservation Trust captured eight adult individuals in the wild and established a captive breeding programme at Jersey Zoo to safeguard the species from extinction and to provide birds for possible reintroduction after volcanic hazards had ceased. Montserrat Orioles bred successfully in captivity, and in January 2014 there were 49 captive individuals spread among 13 different zoos worldwide (International Species Information System, www.isis.org).

Because the population of Montserrat Orioles appears to be relatively stable at present, no urgent conservation measures are under way. However, the critical importance of the forest habitat has been realised and the forest in the Centre Hills covering the IBA has been declared as a reserve by the Government of Montserrat.

Seabirds

Montserrat has only small, remnant populations of seabirds, whose breeding distribution is largely restricted to cliffs, offshore rock stacks or the volcanic exclusion zone. The most likely reason for this restricted distribution and small population sizes of most species is the occurrence of invasive mammalian predators, notably rats and feral cats, which are known to affect seabirds all over the world (Jones *et al.* 2008; Medina *et al.* 2011). Despite the suboptimal breeding conditions, eight seabirds breed in small numbers, and another nine species can be seen regularly or occasionally in the surrounding seas. Many of the seabirds observed along the coast of Montserrat are probably residents of Redonda, which supports larger seabird colonies despite the presence of rats.

Brown Boobies *Sula leucogaster*, Brown Pelicans *Pelecanus occidentalis* and Red-billed Tropicbirds *Phaethon aethereus* are common residents and seen regularly in nearshore

waters around Montserrat. Nesting is restricted to sheltered cliff ledges, and larger populations of Brown Boobies and tropicbirds occur on Redonda, which also has small numbers of Red-footed *S. sula* and Masked Boobies *S. dactylatra*. Magnificent Frigatebirds *Fregata magnificens* are also common residents and breed on Redonda and Pinnacle Rocks. Audubon's Shearwaters *Puffinus lherminieri* can be heard regularly at night flying along cliffs, and may nest along some inaccessible cliffs but there are no confirmed breeding records. White-tailed Tropicbirds *Phaethon lepturus* nest in small numbers along the cliffs of the Silver Hills.

Most gulls and terns are observed in small numbers resting on beaches or feeding in inshore waters, but the volcanic exclusion zone currently provides many unvegetated lava fields and gravel patches, which may provide suitable nesting habitat. However, because the exclusion zone is inaccessible, there is little information on what species may currently breed there, and only a colony of Least Terns is known to breed on barren lava fields.

Migrants

Between August and early March many different species migrating between North America and the West Indies or South America can be observed, stopping over or wintering on Montserrat. There are no large concentrations of migrants, and little information exists about the phenology and abundance of individual species.

Until recently, the most conspicuous migrants were shorebirds, but the loss of suitable wetland habitat in the Belham River estuary and Little Bay has severely reduced the number of shorebirds stopping over on Montserrat. Terns and gulls, Spotted Sandpiper *Actitis macularius*, Semipalmated Sandpiper *Calidris pusilla*, and Lesser Yellowlegs *Tringa flavipes* were the most common species. Migrant landbirds occur either in dry scrub at lower elevations (e.g. Yellow Warbler *Setophaga petechia*, which also breeds locally) or in moister forest habitats at higher elevations (e.g. Northern Parula *S. americana*) depending on species' habitat preferences. Montserrat is unlikely to be a critical stopover and refuelling place for a large

number of migrants, but very little is known about the migrant bird community and new discoveries are always possible (e.g. Oppel & Boatswain 2013).

Other native biodiversity

Montserrat, like many isolated islands, is home to some exceptionally rare plant and animal species. There are more than 875 higher plant species on the island, several of which are globally threatened: Red Cedar *Cedrela odorata* (VU), Lignum Vitae *Guaicum officinale* (EN), Brazilian Mahogany *Swietenia macrophylla* (VU) and American Mahogany *S. mahagoni* (EN). Since the volcanic eruption, two endemic species have been found, the orchid *Epidendrum montserratense* and the privet *Rondeletia buxifolia*, which have been conserved and transferred to local and overseas botanical gardens (Royal Botanic Gardens, Kew).

Two amphibians, nine terrestrial reptiles, four sea turtles and ten native bat species have been recorded on Montserrat in modern times. Among these terrestrial vertebrates are three endemic reptiles – the Critically Endangered Montserrat Galliwasp *Diploglossus montisserrati*, the Critically Endangered Montserrat Skink *Mabuya montserratiae*, and the unassessed Montserrat Anole *Anolis lividis* – and four endemic subspecies – the Montserrat Ameiva *Ameiva pluvianotata pluvianotata* (Teiidae), Southern Leeward Dwarf Gecko *Sphaerodactylus fantasticus ligniservulus* (Gekkonidae), Montserrat Black Snake *Alsophis antillensis manselli* (Colubridae) and the Montserrat Blind Worm Snake *Typhlops monastus monastus* (Typhlopidae). The conservation status of the subspecies has not yet been formally assessed by the IUCN, but they are considered ‘at risk’ due to their small range (Hedges & Conn 2012).

Montserrat is also home to the Critically Endangered Giant Ditch Frog *Leptodactylus fallax*, known locally as the Mountain Chicken. This species is found only on Montserrat and Dominica, and has undergone catastrophic declines due to the amphibian disease chytridiomycosis. Conservationists from Durrell Wildlife Conservation Trust have been working with the Montserrat Department of Environment to

conserve the frog in the Centre Hills forest, and by establishing a captive breeding population. Releases of captive-bred frogs showed that survival in the wild is alarmingly low because the frogs get infected with chytridiomycosis within a few months after being released into the forest. Recently, however, there are indications that individual frogs may be able to survive low levels of chytrid fungal infection, but further scientific investigation is needed to understand whether the Mountain Chicken will be able to survive on Montserrat.

Montserrat also has a unique bat fauna, with at least one endemic subspecies (*Sturnira thomasi vulcanensis*) (Pedersen *et al.* 2010). Very little is known about the invertebrate biodiversity of the island, but peculiar and potentially rare species are likely to exist in the forest and further basic research is needed for most taxonomic groups.

The island is a nesting site for four species of sea turtles, the Green Turtle *Chelonia mydas*, Hawksbill Turtle *Eretmochelys imbricata*, Loggerhead Turtle *Caretta caretta* and Leatherback Turtle *Dermochelys coriacea*, all of which feed in marine habitats like seagrass beds (Martin *et al.* 2005). The seagrass beds and the coral reefs around the island support a diverse fish, coral and invertebrate fauna, but the abundance of threatened key reef-building species such as Staghorn *Acropora cervicornis* and Elkhorn *A. palmata* coral is low and instead encrusting forms of fire coral species *Millepora* dominate the reefs.

Main threats to native biodiversity

The main threats to native biodiversity on Montserrat are habitat loss and invasive, non-native species. Montserrat’s habitats have been radically altered by human activity since the arrival of Europeans: massive forest clearance during the plantation era left only a tiny remnant of primary forest, and much of the lowland and coastal areas have been converted irreversibly to agriculture and settlement. Lowland forest is now relatively rare, and occurs primarily as narrow, riparian strips. In recent years, there has been relatively little pressure to clear further areas of hill forest because the value of these forests for watershed protection is widely realised. However, the forest reserve that protects the

Centre Hills forest (1,130 ha) does not encompass the whole forest (c. 1,300 ha) and deforestation outside the reserve boundary continues, to develop land for agriculture and housing.

Habitat loss on land also affects the marine biodiversity due to increased soil erosion and sediment run-off that reduces the clarity of near-shore waters. Sedimentation is a major cause of mortality for corals, especially massive growth forms such as *Goniastrea* and large stony corals from the family Faviidae (Rogers 1990), and may thus affect several of the reefs around the north-west coastline, where currently most development occurs.

Invasive non-native species are widespread on Montserrat, and probably arrived with sailors several hundred years ago. Altogether, 16 species of non-native vertebrates have established self-sustaining feral populations on the island. Invasive mammalian predators or omnivores, particularly cats and rats, are the most likely cause for the restricted breeding distribution of seabirds on Montserrat. Rat predation also occurs in the Centre Hills forest, and affects the Montserrat Oriole and probably many other native birds (Allcorn et al. 2012). The Small Indian Mongoose *Herpestes auropunctatus*, a predator of many native species in the British Virgin Islands, is fortunately

absent from Montserrat.

During the volcanic eruption, people rapidly evacuated the southern part of the island, and abandoned livestock. Most species managed to survive and establish feral populations, and today there are feral populations of goats, sheep, cattle, pigs, horses, donkeys and chickens. The first four are especially numerous and have devastating effects on forest vegetation and regeneration. In the forest remnants in the South Soufrière Hills, where no hunting pressure exists and herbivore populations have increased dramatically, the forest understorey is heavily depleted and virtually no regeneration occurs. Feral pigs also affect forest habitats, for example by destroying large clumps of *Heliconia caribaea* (the preferred plant in which the Montserrat Oriole constructs its nests), and may be significant predators of Mountain Chickens, the Montserrat Galliwasp, and sea turtle eggs on beaches. Control operations are under way, but the rugged terrain makes it difficult to keep populations of feral livestock under control.

Of all the islands and islets in the UKOTs (more than 2,000 of them), Montserrat is the one that would benefit most if all invasive vertebrates could be eradicated (Dawson et al. 2015), although this is unrealistic at present because of the human population and difficulties with the cultural significance



Alistair Homer

46. The Forest Thrush *Turdus lherminieri* is a globally threatened species native to only four islands in the Caribbean, but is one of the most common forest birds on Montserrat; May 2014.

of feral livestock (Oppel *et al.* 2011).

The invasive Cane Toad *Rhinella marina* is ubiquitous on the island and, since it is resistant to chytridiomycosis, it can act as a vector for the disease that threatens the native Mountain Chicken. Cane Toads may also compete with native frogs, and are less vulnerable to predators due to their innate defensive mechanisms.

Invasive alien plants may also have significant impacts on the health of the native forest. For example, many non-native fruit trees, such as mango and guava, are widespread on Montserrat and support large numbers of fruit-eating birds. The most abundant bird species in the Centre Hills is the native Pearly-eyed Thrasher, an opportunistic omnivore that is also known to predate Montserrat Oriole nests (Allcorn *et al.* 2012). The species is now extremely abundant, perhaps because of the availability of non-native fruit trees. By supporting a large population of thrashers, the non-native fruit trees may thus have indirect consequences for less common native birds. The non-native fruit trees are dispersed by both native and non-native animals, and there are concerns that the natural forest will be gradually replaced by a few invasive plant species unless feral livestock numbers can be controlled.

The marine habitats are also threatened by invasive species, most notably the proliferation of lionfish *Pterois* spp. Native to the Indo-Pacific region, lionfish are voracious predators of native reef fish, with the capacity to severely affect local fish stocks (Ruiz *et al.* 1997). Lionfish are present around Montserrat, but the magnitude of their impact has not been quantified.

Further threats to native biodiversity are generally minor and caused by direct human disturbance. Nesting sea turtles are frequently disturbed by people and their pets, and have



Alistair Homer

47. The Purple-throated Carib *Eulampis jugularis* is native to most islands in the Lesser Antilles, and is one of three colourful hummingbird species buzzing through the forests of Montserrat; May 2014.

recently benefited from the lack of human disturbance in the volcanic exclusion zone. Because tourism numbers are currently low, the impacts of visitors on forests, beaches, and marine habitats are negligible.

Conservation

The Department of Environment of the Ministry of Agriculture, Lands, Housing and Environment has responsibility for biodiversity conservation on Montserrat. Enabling legislation for conservation is provided by the Forestry, Wildlife, National Parks and Protected Areas Ordinance (2002), which makes provision for the designation of protected areas and the protection of wildlife and the Endangered Animals and Plants Act 2002.

The Conservation and Environmental Management Act (CEMA) was passed by the Montserrat Legislative Assembly (the local 'parliament') in July 2014, having been in draft since 2008. This legislation seeks to provide for the administration, conservation and sustainable use of biological diversity, natural resources and the natural heritage of Montserrat, the designation and manage-

ment of protected areas, pollution control, and the incorporation of international obligations with respect to the environment into national law. However, this legislation has not yet been brought into force; a number of regulations and procedures are needed and until these are in place Montserrat's environmental legislation remains incomplete.

The only legally protected areas on Montserrat are the forest reserves in the Centre Hills (1,130 ha) and Silver Hills (30 ha), and the formerly important but now devastated protected areas in the Soufrière Hills (810 ha) and in Fox's Bay Bird Sanctuary (6 ha). A number of small (c. 1 ha) protected areas have been designated, for example under National Trust legislation, but

are not thought to be particularly important for biodiversity conservation. The last remaining wetland, a 0.6-ha mangrove swamp in the northwest of the island, was designated as a Wildlife Reserve ('Pipers Pond'), but in March 2014 protection was repealed and the pond destroyed for development.

The Montserrat Physical Development Plan 2012–22 makes further provisions to maintain the integrity of protected areas, the use of buffer zones and the restriction of development in and around the forested valleys in the lowlands for the purposes of conservation and flood risk management.

The Department of Environment conducts the annual forest bird monitoring, and

runs several active conservation projects to restore native biodiversity. Since 2009 a project funded by the UK's Darwin and OTEP initiative and the EU's BEST initiative aims at controlling feral livestock in the Centre Hills, and since 2010 a Mountain Chicken project attempts to reintroduce captive-bred Mountain Chickens into the forest.

Outside the government, the main conservation organisation on the island is the Montserrat National Trust, which has a mandate to preserve and protect the natural, historical and cultural heritage of Montserrat. To date, most funding for conservation work has been received from international donor agencies and UK Government funds such as the Overseas Territories Environment Project (OTEP) and the Darwin Initiative. Several UK-based organisations (e.g. RSPB,



48. The dominant understorey plant in the moist forests of Montserrat is *Heliconia caribaea*. The plant has large red floral bracts that store water and contain the small inconspicuous flowers. These microhabitats are important for arthropods, and a favourite feeding and drinking place for several native forest birds; April 2014.

Durrell Wildlife Conservation Trust, Royal Botanic Gardens Kew, and Joint Nature Conservation Committee) as well as some US-based institutions (International Institute of Tropical Forestry, Montana State University, University of Wisconsin Madison) and individuals (Scott Pedersen) have a long history of involvement in Montserrat's conservation, working in partnership with the Forestry Division of the Department of Environment and the National Trust.

In 2013, Coral Cay Conservation, an international non-governmental ecotourism organisation, established a conservation programme on Montserrat that focuses on surveying the marine habitat, but also includes terrestrial monitoring of birds, plants, reptiles and frogs.

Conservation actions have focused on the Centre Hills and the globally threatened species therein. During 2005–08, a project with the primary goal to enable the people of Montserrat to effectively manage the Centre Hills and associated resources was carried out. Under the umbrella of this project, detailed socio-economic assessments and in-depth biodiversity assessments were conducted, and area management plans published. The publication of the Centre Hills Management Plan has amplified the need for more funding to be directed to biodiversity conservation and the use of environmental goods and services to ensure effective management. Additionally, species action plans have been developed for the Montserrat Oriole, the Mountain Chicken, the galliwasp, the Montserrat orchid, the Montserrat privet, and Thomas's Yellow-shouldered Bat *Sturnira thomasi*.

Effective forest protection will require two approaches that address forest clearing for human and agricultural development, and the reduction of feral livestock populations that prevent natural regeneration of the forest and gradually degenerate the ecological status of the forest. Effective legislation that will ensure the preservation of the remaining forest and its biodiversity for future generations is still lacking, but the new Conservation and Environmental Management Act may improve the situation. Montserrat still has a unique and diverse natural heritage, and more political commitment to its protec-

tion is required to safeguard the natural habitats on the island.

Acknowledgments

The authors would like to thank a large number of Forest Rangers who have gathered bird monitoring data and assisted in conservation work on Montserrat, including Lloyd Aymer, James Boatswain, Jeffrey Dawson, Jervaine Greenaway, Alistair Homer, Glenford James, John Martin, Lloyd Martin and Philemon Murrain. RSPB staff members Richard Allcorn, Phil Atkinson, Chris Bowden, Geoff Hilton, Mark Hulme and Joah Madden, as well as volunteers Laura Bambini, Sorrel Jones, Devathi Parashuram and Alice Tribe, also played an important role in data gathering. Matthew Morton and Richard Young (DWCT), and Colin Clubbe and Martin Hamilton (Royal Botanic Gardens, Kew) managed the Centre Hills Biodiversity Assessment, which examined the results of the bird monitoring programme, and produced key information on distribution of other taxa, including invasives; Mike Ivie and Katie Marske made significant contributions to our understanding of the effect of ashfall on the ecology of the Centre Hills. Sarah Sanders (RSPB) co-ordinated the Centre Hills project, which was led within Montserrat by Carole McCauley. Alistair Homer and Sorrel Jones provided excellent photographs to accompany this article. Tika Aymer and Laverne Rodgers provided GIS data and the map in this article, and Steffinnella Meade provided rainfall data.

References

- Allcorn, R. I., Hilton, G. M., Fenton, C., Atkinson, P. W., Bowden, C. G. R., Gray, G. A. L., Hulme, M., Madden, J., Mackley, E. K., & Oppel, S. 2012. Demography and breeding ecology of the critically endangered Montserrat Oriole. *Condor* 114: 227–235.
- Arendt, W. 1990. Impact of Hurricane Hugo on the Montserrat Oriole, other forest birds, and their habitat. US Department of Agriculture, Forest Service, Institute of Tropical Forestry, Palmer, Puerto Rico.
- , Gibbons, D. K., & Gray, G. 1999. Status of the volcanically threatened Montserrat Oriole *Icterus oberi* and other forest birds in Montserrat, West Indies. *Bird Conservation International* 9: 351–372.
- Barclay, J., Johnstone, J. E., & Matthews, A. J. 2006. Meteorological monitoring of an active volcano: implications for eruption prediction. *Journal of Volcanology and Geothermal Research* 150: 339–358.
- Bond, J. 1939. Some birds from Montserrat, British West Indies. *Auk* 56: 193–195.
- Bowden, C. G. R., Fenton, C., Gray, G. A. L., Mackley, L., Hilton, G. M., & Atkinson, P. W. 2001. The Montserrat Oriole: in trouble again. *Dodo* 37: 100.
- Cherry, J. F., Ryzewski, K., Leppard, T. P., & Bocancea, E. 2012. The earliest phase of settlement in the eastern Caribbean: new evidence from Montserrat. *Antiquity* 86: 1–5.
- Dalsgaard, B., Hilton, G. M., Gray, G. A. L., Aymer, L., Boatswain, J., Daley, J., Fenton, C., Martin, J., Martin, L., & Murrain, P. 2007. Impacts of a volcanic eruption on the forest bird community of Montserrat, Lesser Antilles. *Ibis* 149: 298–312.
- Dawson, J., Oppel, S., Cuthbert, R., Holmes, N., Bird, J. P., Butchart, S., Spatz, D., & Tershy, B. 2015.

- Prioritizing islands for the eradication of invasive vertebrates in the UK overseas territories. *Conservation Biology* 29: 143–153.
- Garrido, O. H., Wiley, J. W., & Kirkconnell, A. 2005. The genus *Icterus* in the West Indies. *Ornitologia Neotropical* 16: 449–470.
- Hedges, S. B., & Conn, C. E. 2012. A new skink fauna from Caribbean islands (Squamata, Mabuyidae, Mabuyinae). *Zootaxa* 3288: 1–244.
- Hilton, G., Martin, L., & Daley, J. 2006. Montserrat. In: Sanders, S. (ed.), *Important Bird Areas in the United Kingdom Overseas Territories*. RSPB, Sandy.
- , —, & Allcorn, R. 2008. Montserrat. In: Wege, D. C., & Anadon-Irizarry, V. (eds.), *Important Bird Areas in the Caribbean: key sites for conservation*, p. 384. BirdLife International, Cambridge.
- , Atkinson, P., Gray, G., Arendt, W., & Gibbons, D. 2003. Rapid decline of the volcanically threatened Montserrat Oriole. *Biol. Conserv.* 111: 79–89.
- Jones, H. P., Tershy, B. R., Zavaleta, E. S., Croll, D. A., Keitt, B. S., Finkelstein, M. E., & Howald, G. R. 2008. Severity of the effects of invasive rats on seabirds: a global review. *Conserv. Biol.* 22: 16–26.
- Martin, C. S., Jeffers, J., & Godley, B. J. 2005. The status of marine turtles in Montserrat (Eastern Caribbean). *Animal Biodiversity and Conservation* 28: 159–168.
- Medina, F. M., Bonnaud, E., Vidal, E., Tershy, B. R., Zavaleta, E. S., Josh Donlan, C., Keitt, B. S., Corre, M., Horwath, S. V., & Nogales, M. 2011. A global review of the impacts of invasive cats on island endangered vertebrates. *Global Change Biology* 17: 3503–3510.
- Oppel, S., & Boatwain, J. 2013. First record of the Orchard Oriole (*Icterus spurius*) on Montserrat. *J. Caribbean Ornithology* 26: 57–58.
- , Beaven, B., Bolton, M., Vickery, J. A., & Bodey, T. W. 2011. Eradication of invasive mammals on islands inhabited by humans and domestic animals. *Conserv. Biol.* 25: 232–240.
- , Cassini, A., Fenton, C., Daley, J., & Gray, G. 2014a. Population status and trend of the Critically Endangered Montserrat Oriole. *Bird Conservation International* 24: 252–261.
- , Hilton, G. M., Allcorn, R., Fenton, C., Matthews, A. J., & Gibbons, D. 2013. The effects of rainfall on different components of seasonal fecundity in a tropical forest passerine. *Ibis* 155: 464–475.
- , Ratcliffe, N., Fenton, C., Daley, J., Gray, G., Vickery, J. A., & Gibbons, D. 2014b. Assessing population viability while accounting for demographic and environmental uncertainty. *Ecology* 95: 1809–1818.
- Pedersen, S. C., Kwiecinski, G. G., Larsen, P. A., Morton, M. N., Adams, R. A., Genoways, H. H., & Swier, V. J. 2010. Bats of Montserrat: population fluctuation and response to hurricanes and volcanoes, 1978–2005. In: Fleming, T. H., & Racey, P. A. (eds.), *Island Bats: evolution, ecology, and conservation*, pp. 302–340. University of Chicago Press, Chicago.
- Price, M. R., & Hayes, W. K. 2009. Conservation taxonomy of the Greater Antillean Oriole (*Icterus dominicensis*): diagnosable plumage variation among allopatric populations. *J. Caribbean Ornithology* 22: 19–26.
- Rogers, C. 1990. Responses of coral reefs and reef organisms to sedimentation. *Marine Ecology Progress Series* 62: 185–202.
- Ruiz, G. M., Carlton, J. T., Grosholz, E. D., & Hines, J. E. 1997. Global invasions of marine and estuarine habitats by non-indigenous species: mechanisms, extent and consequences. *Integrative and Comparative Biology* 37: 621–632.
- Scientific Advisory Committee. 2012. *Assessment of the Hazards and Risks Associated with the Soufrière Hills Volcano, Montserrat*. 16th Report of the Scientific Advisory Committee on Montserrat Volcanic Activity. Montserrat Volcano Observatory, Montserrat.
- Sparks, R. S. J., & Aspinall, W. P. 2004. Volcanic activity: Frontiers and challenges in forecasting, prediction and risk assessment. In: Sparks, R. S. J., & Hawkworth, C. J. (eds.), *State of the Planet: frontiers and challenges in geophysics*, pp. 359–373. American Geophysical Union, Washington.
- Stattersfield, A., Crosby, M., Long, A., & Wege, D. 1998. *Global Directory of Endemic Bird Areas*. BirdLife International, Cambridge.

Steffen Oppel and James Millett, RSPB Centre for Conservation Science, The Lodge, Sandy, Bedfordshire SG19 2DL; e-mail steffen.oppel@rspb.org.uk

Gerard Gray, James Daley, Stephen Mendes and Calvin Fenton, Montserrat Department of Environment, PO Box 272, Brades, Montserrat, West Indies

Gemma Galbraith and Shawn Daniel, Coral Cay Conservation Montserrat Programme, The Taj, Old Towne, Montserrat, West Indies

Steffen Oppel and **James Millett** have been working with the RSPB since 2009, and are responsible for developing solutions to save globally threatened species and for building scientific and managerial capacity with partner organisations in the UK Overseas Territories. **Gerard Gray, James Daley, Stephen Mendes** and **Calvin Fenton** work with the Department of Environment on Montserrat and conduct most of the fieldwork and administrative work concerned with the protection of the natural resources of Montserrat. **Gemma Galbraith** and **Shawn Daniel** are project scientists with Coral Cay Conservation and lead and instruct volunteers to conduct a diverse portfolio of terrestrial and marine monitoring programmes on Montserrat.

From the Rarities Committee's files

Extralimital races of the Ring Ouzel in Britain



Abstract In 2012 BOURC undertook a review of three records of extralimital races of Ring Ouzel *Turdus torquatus* in Britain. It concluded that the records were no longer acceptable and that the races *alpestris* and *amicorum* should be removed from the British List. This paper addresses the identification of these extralimital races, summarises the results of the BOURC review, and discusses a subsequent claim of *alpestris* from Norfolk submitted to BBRC.

Taxonomy and distribution

There are three races of the Ring Ouzel *Turdus torquatus*, each breeding in upland or mountainous regions:

- Nominate *torquatus* breeds locally in northwest France, Britain & Ireland, western and northern Scandinavia and northwest Russia. This race is a medium-distance migrant and the non-breeding range includes southern Spain and north-west Africa (Cramp *et al.* 1988).
- In the mountains of southern and central Europe, *T. t. alpestris* (hereafter '*alpestris*') breeds in the Pyrenees, the Alps, the

Carpathians and the Balkans, but its breeding range also extends into western Turkey (Cramp *et al.* 1988). Some southern breeders may be resident, or short-distance or altitudinal migrants, but the non-breeding range also includes North Africa and the fringes of the eastern Mediterranean.

- Finally, *T. t. amicum* (hereafter '*amicorum*') breeds in northeast Turkey, the Caucasus, northern Iran and south-west Turkmenistan. Birds breeding in the Taurus Mountains in central Turkey are considered to be intermediate between



Harri Taavetti/FLPA

49. First-winter male Ring Ouzel *Turdus t. torquatus*, Finland, October 2010. This bird shows the typical *torquatus* pattern of greyish-white fringes (but no pale centres) to the belly, flank and lower breast feathers and largely dark undertail-coverts.

Alain Chappuis



50. Male Ring Ouzel *Turdus torquatus alpestris*, Rhône-Alpes, France, May 2011. Besides the broad whitish fringes to the belly, flank and lower breast feathers, this *alpestris* shows the diagnostic whitish centres to these feathers, accentuating the apparent ‘scaliness’. The undertail-coverts are also typical of *alpestris*, although this pattern can be matched by some *torquatus*.

alpestris and *amicorum* (Kirwan *et al.* 2008). The non-breeding range is believed to include Iran and Iraq (Cramp *et al.* 1988). In Israel, Shirihai (1996) considered it to be a migrant and winter visitor to the south and east and the mountain area of Sinai, while it has also straggled to Libya, Egypt, northern Sudan and the Persian Gulf.

Based on distribution and movements, *alpestris* would appear to be a potential (though perhaps not especially likely) vagrant to Britain, while *amicorum* seems distinctly less likely to occur.

Identification

The characters of the three races have rarely been discussed in detail, and *amicorum* in particular is poorly known. Most authors (e.g. Cramp *et al.* 1988, Svensson 1992 and Clement & Hathway 2000) have provided a slightly expanded description of the

summary details contained in table 1. The following analysis is based on the existing literature, a review of published and online images, a BBRC examination of museum material and observations by the author of *alpestris* in Bulgaria in July 2014. It focuses particularly on the separation of *torquatus* and *alpestris*.

Underpart ‘scaliness’

Svensson (1992) illustrated important differences between *torquatus* and *alpestris* in the feather patterns on the belly and undertail-coverts, regarding them as virtually diagnostic. In summary, *torquatus* shows a largely dark feather with a thin white fringe, a diffuse pale area at the base and a white shaft, whereas *alpestris* typically shows a relatively broad white fringe on each feather and a prominent white band either side of the shaft. On some birds, the majority of the feather is white and the only dark portion is a broad subterminal band. The effect of this feather patterning is to create a distinctive pale and ‘scaly’ appearance to the underparts, particularly towards the rear. Although not explicitly stated by Svensson, this distinctive feather pattern can also extend to the flanks and lower breast.

As in *torquatus*, ‘scaliness’ is more prominent on females than on males. The palest *alpestris* females are especially striking in this respect as the white feather fringes and centres almost obscure the dark parts of the feathers. Female *alpestris* can also show extensive white in the chin and throat.

Svensson (1992) noted that the racial attribution of most birds can be determined in the hand without reference to museum skins and that only a few are intermediate. However, an examination of skins and images of both *torquatus* and *alpestris* suggests that the patterning of the underparts of both taxa may be a little more variable than indicated here. In

particular, *torquatus* often shows white centres to the undertail-coverts, resembling the pattern described for *alpestris*. These white centres are typically restricted

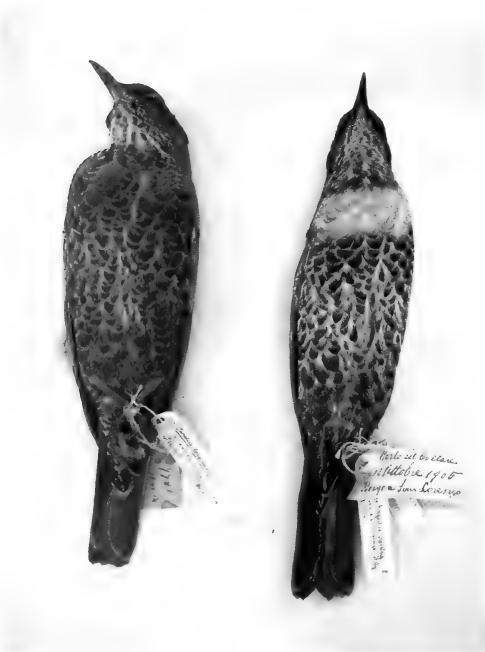
Table 1. Descriptions of the three races of Ring Ouzel <i>Turdus torquatus</i> with reference to characteristic plumage features.				
	<i>torquatus</i>	<i>alpestris</i>	<i>amicorum</i>	
Underpart ‘scaliness’	weak/moderate	moderate/strong	weak/moderate	
Wing paleness	weak/moderate	moderate/strong	moderate/strong	
Gorget size	moderate	moderate	broad/deep	

Adam Rowlands © NHM, Tring



51. October *torquatus* Ring Ouzel left, November *alpestris* right. This strikingly pale *alpestris* has very prominent white centres to the belly, flank and lower breast feathers giving an extremely 'scaly' appearance to the underparts.

Adam Rowlands © NHM, Tring



53. October *torquatus* Ring Ouzel left, October *alpestris* right. This *alpestris* lacks obvious white centres to the belly, flank and lower breast feathers and therefore appears more similar to *torquatus*.

Adam Rowlands © NHM, Tring



52. September *torquatus* Ring Ouzel left, September *alpestris* right. This slightly darker *alpestris* looks more similar to *torquatus* but the white centres to the belly, flank and lower breast feathers are still present.

to the area alongside the shaft of the feather, appearing as a narrow white central stripe, but they can also be broader. However, *torquatus* appears always to show more dark than white across the feather tract. No *torquatus* skins or images were found showing white centres to the belly, flank and lower breast feathers. Similarly, the appearance of *alpestris* is also somewhat variable. Some show more restricted white in the undertail-coverts, virtually restricted to a fine shaft streak, and the pale centres to the belly, flank and lower breast feathers can be lacking. Such birds therefore overlap with the pattern described for *torquatus*.

The body plumage of *amicorum* is described as similar to that of *torquatus* by all authors. There is no evidence that it ever approaches the typical appearance of *alpestris*.

Wing paleness

There is some variation in the upperwing pattern of Ring Ouzels. Darker birds show relatively fine white or greyish-white fringes to all the wing feathers, though on the closed

Adam Rowlands © NHM, Tring



54. This *alpestris* shows the 'classic' undertail-covert pattern of that race, with the majority of each feather white, leaving only a broad, dark subterminal band.

Adam Rowlands © NHM, Tring



55. This *alpestris* shows more restricted white in the undertail-coverts, with just a white fringe to each feather and a narrow band either side of the shaft. This pattern overlaps with that of some *torquatus* (see plate 56 below).

Adam Rowlands © NHM, Tring



56. This *torquatus* shows extensive white in the undertail-coverts. As well as a white fringe to each feather, it shows a broad white band either side of the shaft. This bird therefore shows more white than a less well-marked *alpestris* (see plate 55 above).

Adam Rowlands © NHM, Tring



57. This *torquatus* has more typical undertail-coverts. Each feather is largely dark, with just a white fringe and a narrow white line along the shaft.

wing the fringes to the secondaries may merge to create a discrete greyish area or 'panel'. Paler birds show pale grey, even whitish-grey outer webs (and sometimes inner webs) to the greater coverts and tertials. The overall impression with these paler birds is of an extensively and almost uniformly pale grey area on the upperwing rather than a contrasting secondary panel.

In general terms, *torquatus* lies towards the darker end of this range of variation while *alpestris* lies towards the paler end. As with the underparts pattern, however, studies of skins and images reveal much variation. Some *torquatus*, for example, are paler-winged, showing extensive pale grey outer webs to the greater coverts and tertials and therefore an extensively pale grey area in the upperwing. Some *alpestris* closely match the appearance of these paler-winged *torquatus*, and while it seems that an 'average' *alpestris* might be paler in the wing than an 'average' *torquatus*, there is evidently sufficient variation for the prominence of the wing-panel to be of limited value as an identification character.

Svensson (1992) referred to the very pale wing of *amicorum* compared with *torquatus* whilst Cramp *et al.* (1988) and Clement & Hathway (2000) stated that *amicorum* is even paler-winged than *alpestris*.

Gorget size

There are no reported differences in gorget size or prominence between *torquatus* and *alpestris* but photographs of *amicorum* show a very broad and extensive gorget.

Conclusions

Given the variation in at least *torquatus* and *alpestris*, which may be more extensive than generally recognised, it is clear that the identification of an extralimital race in a British context will be difficult. In particular, a general description of a bird with 'pale and scaly' underparts and 'pale' wings is clearly not sufficient for it to be accepted as *alpestris*. In reality, the precise pattern of the undertail-coverts and, in particular, that of the belly, flank and lower breast feathers, seems to offer the best prospect of identification, a minimum requirement being the classic *alpestris* pattern – a mainly white feather with a black subterminal fringe – on all these

feather groups.

In practice, only individuals at the paler end of the range of variation of *alpestris* will be identifiable, and then perhaps only with exceptional views, good photographs or (more likely) in the hand. DNA evidence would also allow identification to race (M. Collinson *in litt.*).

The BOURC review

The race *alpestris* was formerly included on the British List on the basis of a male at Guestling, Sussex, on 23rd May 1911 and a female near Brighton, Sussex, on 29th March 1913 (Witherby *et al.* 1943). However, as part of the Hastings Rarities affair, both records were discredited and removed from the published record (Nicholson & Ferguson-Lees 1962).

Subsequently, three records – St Agnes, Scilly, 6th–7th October 1973; Fair Isle, 6th May 1976; and St Mary's, Scilly, 28th September 1977 – were submitted to BOURC for consideration as *alpestris* (BOU 1980). However, BOURC proposed a 'less formal treatment of subspecies' and in view of a claimed 'west to east cline of increasing paleness' in Ring Ouzels, the three listed records were recorded not as *alpestris* specifically but merely as probably having a southern European or southeastern origin. The 6th and 7th editions of the British List (BOU 1992, 2006) listed the nominate race as a migrant breeder and passage migrant and '*alpestris* or *amicorum*' as a vagrant.

Owing to the ambiguities in the above treatment, a new review was undertaken by BOURC in 2012. Its terms of reference were to determine:

- whether the continued inclusion of '*alpestris* or *amicorum*' on the British List was appropriate; and
- whether any of the three records remained acceptable as *alpestris*.

Each of the three birds concerned was described as having prominent underpart patterning ('scaliness'), at least on the flanks (thus probably ruling out *amicorum*), while none was described as having a conspicuously broad breast gorget (the best feature of *amicorum*). While two of the birds are described as having exceptionally pale wings, this feature is mentioned in relation to *torquatus*, and is as applicable to *alpestris* as it is to

amicorum. In short, none of the three birds under review showed characters indicative of *amicorum*, each description contains elements which are the opposite of what would be expected for that race, and as a consequence the continued inclusion of *amicorum* on the British List can no longer be justified.

In order to explore the possibility that *alpestris* was involved, a brief review of the three records is presented below, with an extract from the description followed by a brief summary of the BOURC assessment.

St Agnes, first-winter female, 6th–7th October 1973

‘Upper head, mantle and scapulars distinctly pale, apparently uniform dull dun-grey. Rump and uppertail similar. Wings (when folded) astonishingly pale, with upperwing-coverts, greater coverts, tertials and inner secondaries all greyish-white (at least on fringes) and forming long and striking pale panel along “middle” of bird. Outer greater coverts and secondaries darker, primary coverts and primaries brownish-black. Chin and throat slightly less uniform than upper head but similar in colour. Upper chest without pale bar (just a very faint suggestion of colour dilution). Lower chest as mantle but showing faint barring. Flanks greyish, strongly over-barred with blackish and white crescents, these forming at close range a plumage mark second only to the wing-panel. Vent and undertail-coverts greyish with fairly obvious blackish crescents.’

The description is suggestive of *alpestris* but the lack of precise detail leaves room for doubt. In particular, it is not clear whether extensive pale internal areas were present on the belly, flank and lower-breast feathers, and it is therefore unacceptable as a first for Britain.

Fair Isle, adult male, trapped, 6th May 1976

The bird showed characters which were regarded as ‘at the *T. t. alpestris* end of the range’. There was ‘a great development of paleness in the plumage, especially on the wing-coverts and underparts’. It appeared ‘distinctly more scaly than any other Ring Ouzels [that] I have handled or seen.’

The available description is a somewhat anecdotal summary but is nevertheless suggestive of *alpestris*. In particular, given that it

was an adult male in spring (when the plumage would be more worn), its reported degree of ‘scaliness’ makes it a good candidate for this race. However, the information provided lacks the detail which would be required for a first for Britain and, as it stands, it cannot be accepted as such.

St Mary’s, first-winter, 28th September 1977

‘Head sooty black and unmarked. Back pale smoky grey-brown with feathers showing paler fringes. Wing-coverts and primaries with pale edges. Throat whitish, streaked or striped greyish. Breast black, uniformly sprinkled with fairly small white spots (blending with scales on belly). Rest of underparts black, with flanks and belly feathers distinctly fringed white, creating pronounced scaly pattern. Underside of wing showed prominent whitish flash, like Fieldfare *T. pilaris*.’

The description makes no mention of any characters outside the range of a typical *torquatus* and contains little to suggest *alpestris*. Consequently, it is unacceptable as the first British record.

The review concluded that none of the three records could be referred with absolute certainty to *alpestris*. As a consequence, any reference to vagrant forms of Ring Ouzel has been removed from the British List (BOU 2012).

The 2013 Norfolk bird

The BOURC review provided a useful context in which to examine any new British claims of *alpestris*. Such an opportunity was to come along surprisingly quickly.

On 14th October 2013, a ‘scaly-looking’ Ring Ouzel was trapped at Weybourne Camp, Norfolk. It was retrapped on 24th October and was last seen on 25th. It was considered to show the characters of *alpestris*, and the record was duly submitted to BBRC (see plates 58 & 59).

A brief accompanying note made reference to the undertail-coverts showing the pattern of *alpestris* but the submission in effect comprised a series of photographs, four taken when the bird was first trapped, with another five taken when it was retrapped.

Moss Taylor



58. Ring Ouzel, Weybourne, Norfolk, October 2013. The belly, flank and lower breast feathers of this bird show no white centres and are defined solely by a broad white fringe. Although this pattern can be shown by some darker *alpestris*, this is the normal pattern for *torquatus*.

The images show undertail-coverts with an expanded white area along the shaft of each feather and a broad white tip. The belly, flank and lower breast feathers show no internal white markings and are defined solely by a broad white tip. The greater coverts and tertials are dark, with only thin pale fringes, while the fringes to the secondaries are narrow and greyish, forming little in the way of an obvious wing-panel.

In the light of the BOURC review, and also from its own study of museum material prompted by this submission, BBRC concluded that the Weybourne bird would not prove acceptable as *alpestris*. In particular, the pattern of the undertail-coverts, although similar to the pattern shown by Svensson for *alpestris*, falls within the range of variation now demonstrated for *torquatus*. Furthermore, the belly, flank and lower breast feathers show the pattern typical of *torquatus* while the upperwing also shows the typical pattern of that form.

In summary, the bird shows a set of characters now demonstrated to be consistent with *torquatus* and probably beyond the range of even the darkest *alpestris*. It does, however, provide a useful opportunity to highlight the features which would be necessary to confirm the identification of any future vagrant *alpestris* in Britain.

Andy Stoddart, on behalf of BBRC and BOURC; e-mail andrew.stoddart@tiscali.co.uk

BBRC is sponsored by Carl Zeiss Ltd and the RSPB



Moss Taylor

59. Ring Ouzel, Weybourne, Norfolk, October 2013. The undertail-coverts of this bird show a white fringe to each feather and a narrow white band either side of the shaft. Although this pattern matches some *alpestris*, it can also be shown by *torquatus*.

Acknowledgments

Many thanks are due to Chris Kehoe for initiating an early draft of this paper; to Martin Collinson for providing information on the BOURC review process; to Adam Rowlands for drawing together the results of the BBRC's museum study; to Mark Adams and other staff at NHM, Tring, and to Moss Taylor for providing details and photographs of the Norfolk bird.

References

- British Ornithologists' Union (BOU). 1980. Records Committee: 10th Report. *Ibis* 122: 564–568.
- 1992. *Checklist of Birds of Britain and Ireland* (6th edition). BOU, Tring.
- 2006. *The British List: a checklist of birds of Britain* (7th edition). *Ibis* 148: 526–563.
- 2012. Records Committee: 40th Report. *Ibis* 154: 212–215.
- Clement, P., & Hathway, R. 2000. *Thrushes*. Christopher Helm, London.
- Cramp, S. (ed.) 1988. *The Birds of the Western Palearctic*. Vol. 5. OUP, Oxford.
- Kirwan, G. M., Boyla, K., Castell, P., Demirci, B., Özen, M., Welch, H., & Marlow, T. 2008. *The Birds of Turkey*. Christopher Helm, London.
- Nicholson, E. M., & Ferguson-Lees, I. J. 1962. The Hastings Rarities. *Brit. Birds* 55: 299–384.
- Shirihai, H. 1996. *The Birds of Israel*. Academic Press, London.
- Svensson, L. 1992. *Identification Guide to European Passerines*. 4th edn. Privately published, Stockholm.
- Witherby, H. F., Jourdain, F. C. R., Ticehurst, N. F., & Tucker, B. W. 1943. *The Handbook of British Birds*. Vol. 2. Witherby, London.



The spinning behaviour of phalaropes

Abstract A literature review of the spinning behaviour of all three phalarope *Phalaropus* species is supplemented by additional, previously unpublished observations. Spinning as a means to acquire food is apparently relatively unusual, and almost certainly occurs when the food is available at depths greater than the bird can reach directly, yet almost always in shallow water. Phalaropes may spin in either direction, though clockwise spinning is most usual; some birds may change spinning direction from time to time.

Richard Porter recently described a juvenile Red-necked Phalarope *Phalaropus lobatus* spinning vigorously, and recorded a 'record' of 206 consecutive spins (Porter 2012). A series of timed observations yielded an average spin-rate of 54 rpm, so that setting this record would have taken almost four minutes! An editorial comment to that note observed that, although widely mentioned in the literature, spinning by phalaropes (of all three species – Red-necked, Grey *P. fulicarius* and Wilson's *P. tricolor*) seems to be rarely reported. Consequently, readers were invited to submit details of any observations they may have made of spinning by any of the three species, for future publication of a brief review of the topic.

Detailed responses were received from Mike Everett (MJE) and Phil Palmer (PP); the lack of any other response seems to suggest that spinning by phalaropes is indeed unusual! All the authors of this note have seen phalaropes feeding in relatively deep water, both fresh and salt, but have never observed spinning behaviour in these circumstances.

Central to this review is a short article by Obst *et al.* (1996), who researched the hydraulics of spinning Red-necked Phalaropes in a laboratory flume. They described the normal feeding behaviour of swimming phalaropes when not spinning, which is to take prey from at, or close to the water surface, almost randomly picking and pecking, left and right, with as many as 180 pecks per minute. Spinning, however, is a very different feeding method, studied in the flume experiments. When spinning, typically at a rate of about one revolution per second, phalaropes kick water away at the surface so rapidly that the water surface is depressed. As a consequence, a vortex of water flows

upward to make good the depressed surface, bringing food items with it. While spinning they move sideways, enabling them to extract food from new areas, all the while repeatedly up-ending like tiny, surface-feeding ducks. Usually the 'up-end' is a simple movement, but occasionally it is performed with a definite forward dive, with the tail and feet thrusting up behind.

The Obst *et al.* experiments involved placing a dish containing brine shrimps in the water at the base of the flume; only when these prey items were too deep for them to reach by dipping bill and head underwater did the birds begin to spin. Then, with high-speed photography and using dye in the water, it was demonstrated that the phalaropes generated an upwelling vortex of water that contained prey items from the bottom of the flume. They were timed to spin at a rate of one revolution per second, which required 7–8 kicks of the legs. It is interesting to note that this rate of spin is close to that observed by Porter (2012).

These experiments demonstrated two key aspects of phalarope spinning behaviour. First, it is a mechanism for bringing up food items from water depths otherwise inaccessible to the birds. Second, it is clearly very energy demanding, and Obst *et al.* suggested that it requires four times the energy of the phalaropes' normal feeding methods. It is not clear how the factor of four was arrived at – from the number of kicks perhaps – but even if this factor is not especially precise, it is evident that spinning is a very energy-demanding feeding method.

From this it can be inferred that not only when surface food items are difficult to find, but also when there are sufficient food resources available at relatively shallow

depths, are phalaropes likely to spin. Indeed, Obst *et al.* stated that 'phalaropes do not spin if adequate surface prey are available'.

Literature review

There is surprisingly little detailed information on spinning phalaropes in the literature. Perhaps the most detailed accounts, which apply to all three species, are given by E. Otto Höhn, who reported field observations of Wilson's Phalarope (Höhn 1967) and of Grey and Red-necked Phalaropes (Höhn 1971). In neither account did he mention the water depths in which he observed spinning, but used the term 'pool' (Höhn 1971), which suggests shallow water. He quoted timed Red-necked Phalarope spin rates as averaging 46 rpm, and two female Grey Phalaropes as making 39 rpm. For Wilson's Phalarope, the rate ranged from 38 to 58 rpm. So far as direction of spinning is concerned, Höhn concluded that his observations suggested a preference for right-handed spinning in Grey Phalaropes, a less pronounced right-hand spin preference in Red-necked, and a hardly evident directional preference in Wilson's.

Höhn (1971) also reported that the 'most widely accepted explanation for spinning is that it serves to stir up edible particles from the bottom in shallow water', but goes on to quote Johns (1969), who stated that 'Wilson's Phalaropes spin in deep as well as shallow water'. Unfortunately this is all Johns says – there is no indication of water depth, location, or any other details of local conditions. A similar comment was made by Witherby *et al.* (1943) in the context of the Grey Phalarope: '... spinning... on deeper water or on sea'. Again, there is no further detail.

A similar lack of information on spinning phalaropes also applies to more recent texts. In a general comment relating to phalaropes, all that *HBW* (Vol. 3, p. 464) says is: 'During feeding phalaropes often spin around rapidly, probably to bring deep prey closer to the water surface.' *BWP* (Vol. 3, p. 633) reports for Red-necked Phalaropes: 'Spins – as in Grey Phalarope *Phalaropus fulicarius*, but with average 46 spins per min' but nothing more. For Grey Phalarope, there is a little more detail: 'Characteristically, spins by revolving in either direction (mostly clockwise) in circle c. 10 cm diameter, pecking

outwards at food particle; c. 39 spins per min' (*BWP* Vol. 3, p. 643). Tracy *et al.* (2002) reported that Grey Phalaropes spin at 57 rpm, while Haney & Stone (1988) observed spinning for only 4% of feeding time in a littoral environment (water depths not reported) in the Bering Sea, and give the impression – 'at least one 360 rotation' – that the spinning they observed was at a very low intensity. Cooch (1965) reported extensive spinning by Grey Phalaropes in Arctic Canada in water depths of about 15 cm.

Feeding behaviour of Wilson's Phalaropes is not covered in *BWP*. Colwell & Jehl (1994) commented that 'typical phalarope spinning' is reported as a means of food capture, though they say that spinning behaviour is rarely used at Mono Lake, California, or at other major North American staging areas where food (presumably at the surface) is abundant.

Further observations of phalarope spinning

After scouring his notebooks, MJE found observations from 1965 to 2007 involving spinning by all three phalarope species. There were numerous observations of Red-necked Phalaropes at breeding sites in Scotland and Lapland, and passage birds in the UK; 14 observations of Grey Phalaropes, mostly in winter in the UK; and a single observation of a Wilson's Phalarope in Cambridgeshire. PP reported observations of Red-necked Phalaropes made over five-week periods in Chukotka and Kamchatka, in northeast Siberia, in 2004 and 2009 respectively, and in Chukotka over a seven-week period in summer 2012. Observations of spinning Grey Phalaropes involved about ten individuals each in Spitsbergen (2012), Chukotka (2004) and Alaska (1999).

Red-necked Phalaropes

In 20 or more observations of Red-necked Phalaropes in the UK, both at Scottish breeding sites and on passage, MJE recorded spinning by feeding birds on only two occasions, though he did not note environmental factors such as water depth. The first record was of two birds at a Scottish breeding site, the second at Cley, Norfolk, in May 1979. Elsewhere he reported that in Lapland in

Phil Palmer



Phil Palmer

Phil Palmer



Phil Palmer

60–63. Red-necked Phalarope *Phalaropus lobatus*, Chukotka, Siberia, Russia, June 2012. After rotating three times, this bird thrust forward with its feet, diving into the centre of the vortex to grab food. The water was 0.5 m deep. The four images show a ‘dive’ sequence by the same individual. The last image (plate 63) shows the deepest point that the bird reached; it was never fully submerged.

May–June 1971 he observed Red-necked Phalaropes feeding in conventional manner in tidal water, but two on a small freshwater pool were seen spinning briefly, anti-clockwise.

MJE also saw three spinning offshore (i.e. in tidal water), with different birds spinning both clockwise and anti-clockwise, in very shallow water. Observations by MJE at another freshwater site are described below, under ‘Direction of spinning’.

In 2012 in Chukotka, PP found Red-necked Phalaropes to be one of the most numerous bird species. Sightings involved many different individuals in a variety of habitats. By far the most common feeding method was the ‘rapid, alternate, sideways picks at the water surface’, as described by Porter (2012). This method was used at sea in depths that ranged from a few centimetres to over 20 m, and in both calm and rough conditions. While feeding in this manner, birds took flight to avoid being swamped by large waves or surfacing Grey Whales *Eschrichtius robustus*. In rough conditions, flocks numbering c. 150 birds would swirl around like storm-petrels (Hydrobatidae), before dropping onto the sea to take

advantage of any food presented by the whales. No spinning was noted.

The same feeding method was used on inland waters of varying sizes, depths and vegetation density. In addition, birds regularly waded in shallow water or walked on ice or dry land, again pecking sideways at surface prey. The phalaropes frequently hugged the ice edge or banks where they were harder to see, and which perhaps reduced the chances of them being predated.

Spinning was seen only very rarely, and never in water more than 1.5 m deep. It was not used constantly, as with the bird described by Porter (2012). When spinning, the birds would immerse head, neck and upper chest in the manner of a dabbling duck to reach deeper objects. Individuals that moved to other parts of the same waterbody would change feeding methods to suit prey availability.

Grey Phalaropes

Of the 14 observations of Grey Phalaropes made by MJE, only one bird, at Grafham Water, Cambridgeshire, on 2nd–3rd November 1971, was observed spinning. This was in a small area of calm water, 15 cm deep, the

bottom 8 cm being semi-liquid mud and plant remains, the bird swimming and feeding with rapid dabbling movements, regularly spinning – always clockwise. ‘Up-ending’ while spinning was also seen, much as described above for Red-necked Phalaropes. Grey Phalaropes observed by PP in Spitsbergen, Chukotka and Alaska were feeding mostly in shallow water (c. 2 cm deep) or at the water’s edge. The few observations in deeper water where birds had to swim showed that they took insects from the water surface using the ‘side-to-side’ pecking method similar to Red-necked Phalaropes.

Wilson’s Phalaropes

At Grafham Water lagoons on 6th May 2007, MJE watched a Wilson’s Phalarope for 35 minutes, feeding briefly on the muddy edge of pools or in the shallows, probing and picking. Most of the time, however, it swam and fed commensally, at first closely behind a pair of Common Shelducks *Tadorna tadorna* and then a pair of Gadwalls *Anas strepera*, presumably on food items disturbed by the ducks. In both cases it also fed alone, spinning energetically in long, anti-clockwise bouts. Commensal feeding by Wilson’s Phalaropes has been reported elsewhere (Colwell & Jehl 1994), and has also been observed for the other two species of phalarope (e.g. BWP Vol. 3, pp. 633–634, Kramer & Palmer 1993, Youngman 1995).

Direction of spinning

Reports of the direction of spinning seem to indicate considerable variation, though it appears that clockwise spinning is the more usual. Rubega *et al.* (2000) concluded that Red-necked Phalaropes as a species could spin in either direction but that individuals spin in one direction only. This is not entirely consistent with Cooch’s (1965) Grey Phalarope data of birds spinning in a tiny pool, 3 m × 3 m × 15 cm deep. He showed that clockwise spinning was the most usual, accounting for 76–77% of his observations. Under conditions when birds were feeding in particularly close proximity to one another, the proportion of clockwise spinners increased to more than 90%, presumably to reduce the chance of interaction with their neighbours. Those individuals tending to spin clockwise did so regardless of the density of feeding birds, but

others switched spinning direction. The implication of Cooch’s data is that anti-clockwise spinners were most likely to switch direction.

In Lapland in 1971, MJE spent several days watching up to 60 Red-necked Phalaropes at a shallow pool used for feeding and pre-breeding courtship and display. Spinning was observed frequently, but not studied in particular detail except when it seemed to relate to courtship – this involved spinning by two birds together and was described as follows, from Everett (1976): ‘a spinning bird, of either sex, was rapidly joined by another, always of the opposite sex, which immediately began to spin in the opposite direction... so close to each other that physical contact, particularly by their “sterns”, was frequent.’ The impression given was that the spinning by the first bird directly stimulated the other.

Conclusions

In summary, the constant spinning witnessed by Porter (2012) is quite rare and is undertaken only when food cannot be found by less energy-intensive methods. Spinning almost certainly occurs when food is available only at depths greater than the bird can reach directly, and almost always in shallow water. Though there is mention in the literature of phalaropes spinning in deeper water, we were unable to find any first-hand accounts of this. Phalaropes may spin in either direction, individual birds probably prefer a particular direction. Clockwise spinning is most usual, though some birds, particularly anti-clockwise spinners, may change spinning direction from time to time.

References

- Colwell, M. A., & Jehl, J. R., Jr. 1994. Wilson’s Phalarope (*Phalaropus tricolor*). In: Poole, A. (ed.), *The Birds of North America Online*. Cornell Lab of Ornithology, Ithaca. <http://bna.birds.cornell.edu/bna/species/083>
- Cooch, F. G. 1965. An example of sinistrism in Red Phalaropes (*Phalaropus fulicarius*). *Auk* 82: 276–277.
- Everett, M. J. 1976. Mutual spinning by Red-necked Phalaropes. *Brit. Birds* 69: 219–220.
- Haney, J. C., & Stone, A. E. 1988. Littoral foraging by Red Phalaropes during spring in the northern Bering Sea. *Condor* 90: 723–726.
- Höhn, E. O. 1967. Observations on the breeding biology of Wilson’s Phalarope (*Steganopus tricolor*) in Central Alberta. *Auk* 84: 220–244.
- Höhn, E. O. 1971. Observations on the breeding behaviour of Grey and Red-necked Phalaropes. *Ibis* 113: 335–348.

- Johns, J. E. 1969. Field studies of Wilson's Phalarope. *Auk* 86: 660–670.
- Kramer, D., & Palmer, J. C. 1993. Grey Phalarope feeding in association with ducks. *Brit. Birds* 86: 19.
- Obst, B. S., Hamner, W. M., Hamner, P. P., Wolanski, E., Rubega, M., & Littlehales, B. 1996. Kinematics of phalarope spinning. *Nature* 384: 121.
- Porter, R. 2012. Red-necked Phalaropes: top spinners or not? *Brit. Birds* 105: 479–480.
- Rubega, M. A., Schamel, D., & Tracy, D. M. 2000. Red-necked Phalarope (*Phalaropus lobatus*). In: Poole, A. (ed.), *The Birds of North America Online*.

- Cornell Lab of Ornithology, Ithaca.
<http://bna.birds.cornell.edu/bna/species/538>
- Tracy, D. M., Schamel, D., & Dale, J. 2002. Red Phalarope (*Phalaropus fulicarius*). In: Poole, A. (ed.), *The Birds of North America Online*. Cornell Lab of Ornithology, Ithaca.
<http://bna.birds.cornell.edu/bna/species/698>
- Witherby, H. F., Jourdain, F. C. R., Ticehurst, N. F., & Tucker, B. W. 1943. *The Handbook of British Birds*. Vol. 4. Witherby, London.
- Youngman, R. E. 1995. Feeding association of Grey Phalarope with Avocet. *Brit. Birds* 88: 424.

Richard Chandler, Mike Everett, Phil Palmer and Richard Porter, c/o 4 Kings Road, Oundle, Peterborough PE4 8AX; e-mail R_Chandler@tiscali.co.uk



Obituaries

Christian Jouanin (1925–2014)

Christian Jouanin was a vice-president of the French National Academy of Pharmacy, who for most of his life also occupied a room in the bird department at the Muséum National d'Histoire Naturelle in Paris, from which he participated in all sorts of national and international ornithological and conservation activities. Among other things, he was president of the French ornithological society and of the Société Nationale de la Protection de la Nature, and vice-president of the International Union for the Conservation of Nature in 1970–75. He also took part in the formation of the Ramsar Convention to protect wetlands and co-edited *Le Courrier de la Nature* and *Terre et la Vie*.

At the age of 15, Christian made friends with the chief ornithologist at the museum, Jacques Berlioz, from whom he inherited an

interest in hummingbirds (Trochilidae). In 1952, he co-described the Critically Endangered Djibouti Francolin *Pternistis ochropectus* with his museum colleague Jean Dorst, and then took up the study of seabirds, especially the petrels of the Madeira archipelago and the Indian Ocean, and described two new species from the latter: Jouanin's Petrel *Bulweria fallax* (a large, common representative of Bulwer's Petrel *B. bulwerii* in the Arabian Sea, formerly confused with Mascarene Petrel *Pseudobulweria aterrima* and now known to nest on Socotra) in 1955 and then, in 1964, Barau's Petrel *Pterodroma barau*, which nests on Réunion.

Christian Jouanin co-authored *Oiseaux de la Réunion* and the section on petrels in the revision of J. L. Peters' *Checklist of the Birds of the World*. He initiated the census of French herons and in 1963 described a pale race of Grey Heron *Ardea cinerea monicae* from the Banc d'Arguin in West Africa. In recent decades he took part in cooperative studies with a team from France and Madeira of Cory's Shearwaters *Calonectris (diomedea) borealis* breeding on the Selvagens, which have resulted in over 80 publications. In person he was charming, intelligent, knowledgeable, open-minded, industrious, helpful and hospitable. He leaves two daughters and six grandchildren.

W. R. P. Bourne



Francis Roux

64. Christian Jouanin, with a Fea's Petrel *Pterodroma feae*, on Bugio, Desertas Islands, Madeira, in 1967.

David Frederick Billett (1932–2014)

David Billett's interest in natural history was triggered while a member of the Boy Scout movement in Portsmouth. Although ornithology and specifically the conservation of nearby Farlington Marshes and Langstone Harbour, discovered by him in the late 1940s, were to dominate his life, he was also a keen entomologist, with a particular interest in beetles, and was an enthusiastic moth trapper in his retirement.

A printer by profession, David possessed an astute and logical mind, and quickly perceived that the fortunes of birds and other animals were directly linked to their habitats; he became an ecologist long before the term was known outside academic circles. He was also fully aware of the importance of systematic note-taking, anticipating the necessity to underpin conservation proposals with accurate assessments of the Harbour's bird populations. This was achieved by combining his own observations with those of contemporaries in a series of meticulous yearbooks.

His dedication led to an unbroken, 40-year involvement with Langstone and Farlington, and he was instrumental in the area receiving national recognition. During his watch the Harbour was notified as a SSSI (1958); Hampshire and Isle of Wight Naturalists' Trust negotiated a lease with the Marshes' private owner (1962); Portsmouth City Council declared the area a Local Nature Reserve (1974) before acquisition of the freehold; and the RSPB purchased islands in the Harbour (1979), which, together with adjacent Chichester Harbour, was classified as a Special Protection Area (1987). A key factor in his success was an understanding with the Langstone & District Wildfowling & Conservation Association, whose members were to prove staunch conservation allies. Ironically, an incident that – but for prompt action by his wife and passers-by – might have cost him his life, involved shotguns, when in February 1965 he suffered severe wounds to his chest while attempting to apprehend poachers.

He was a self-taught, first-class field man. In the early days, armed only with *The Observer's Book of British Birds*, encounters with unfamiliar species necessitated a trip to Portsmouth's Central Library where field notes were compared with the Witherby *Handbook*. During

1961–83 he was closely involved with Hampshire bird recording and was County Recorder from 1978 to 1982. Several notes to *BB* between 1952 and 1984 included his account of the Western Palearctic's first Franklin's Gull *Larus pipixcan*, in Langstone Harbour in February 1970 (*Brit. Birds* 64: 310–313).

David effectively founded the Portsmouth Group (see *Brit. Birds* 102: 132–136), setting them on the path of systematically counting Langstone Harbour's waterfowl at least five years before similar initiatives were introduced elsewhere. Tony Prater, in *Estuary Birds of Britain and Ireland* (1981), wrote: 'There have been thorough counts of birds in Langstone Harbour since 1952 and they provide an almost unparalleled documentation of changes on any major British estuary.' Without his continuous and unflagging commitment to its conservation, Langstone Harbour may not have survived as one of Britain's major bird-rich estuaries; his stewardship certainly left it in a more favourable condition than he found it.

A person of the greatest integrity, never compromising his principles, David was mentor to many and friend to all three of us for 60 years and a major influence on our respective ornithological paths. We offer our deepest sympathies to his wife Rosemary, his brother Keith (Cuff) Billett and his many friends. He will be greatly missed.

J. K. Bowers, G. H. Rees and E. J. Wiseman



65. David Billett at Farlington in the mid 1950s.

Bill Truckle

Fishing techniques of the Little Egret

The unusual feeding behaviour of a Little Egret *Egretta garzetta*, described recently by Charles Richards (*Brit. Birds* 107: 487), is one of the lure fishing techniques. This is, in fact, a well-known behaviour and has been reported for the Little Egret by several Japanese authors (Tsuboshima 1994; Hamao *et al.* 2005); it was classified as 'bill vibrating' or 'tongue flicking' by Kushlan (2011). This fishing technique is also known from other heron species, for example Snowy Egret *E. thula* and Night Heron *Nycticorax nycticorax* (Kushlan & Hancock 2005). Video footage of

a Little Egret using this technique is available on the internet: <http://youtu.be/cZSqI1lgqVE>

References

- Hamao, S., Toshiaki, I., Watanabe, H., & Higuchi, H. 2005. [Prey attracting and disturbing behaviours in herons: bill-vibrating and other ingenious foraging techniques.] *Strix* 23: 91–104.
- Kushlan, J. A. 2011. The terminology of courtship, nesting, feeding and maintenance in herons; www.heronconservation.org/resources/Behavior_Terminology.pdf
- & Hancock, J. A. 2005. *The Herons*. OUP, New York.
- Tsuboshima, Y. 1994. [Little Egrets using their own beaks as baits to lure fish.] *Strix* 13: 221–223.

Michel Antoine Réglade, 18 rue de Garin, 31500 Toulouse, France; e-mail michel.reglade@voila.fr

Red Kite carries off golf ball

My friend and RSPB colleague Doug Christie reported an unusual incident that occurred while he was playing a round of golf at Luton Hoo Golf Club on 20th March 2014. Golfers here have become accustomed to the presence of Red Kites *Milvus milvus* around this Bedfordshire course. Since their reintroduction in the Chilterns, the birds have made a welcome diversion for the players. What was less expected was for one of the kites to swoop down onto the fairway, around 40 m away, and pick up a golf ball in its beak. The kite carried the ball around 8–10 m before

dropping it. I am aware of gulls and corvids making off with golf balls in this fashion, and 'drop-catch' behaviour was well covered in a recent paper in *BB*, in which the Red Kite was mentioned (Hewitt 2013). However, golf balls are surely an unusual target for a raptor, and it is perhaps surprising that the bird used its beak rather than its talons for the job.

Reference

- Hewitt, S. 2013. Avian drop-catch play: a review. *Brit. Birds* 106: 206–216.

Conor Jameson, RSPB, The Lodge, Sandy, Bedfordshire SG19 2DL;
e-mail conor_jameson@hotmail.com

Western Jackdaw using material from an old wasp nest in courtship feeding

On 9th April 2014, near Forge Dam, in Sheffield, I observed a pair of Western Jackdaws *Corvus monedula* in a Beech *Fagus sylvatica* tree. The presumed male approached the other bird, presumably a female, with a lump of pale material in its beak. The material looked crumbly, but was still passed to the female's beak without fragmenting. The female was in a semi-crouched position but I did not see any wing-shivering. The male

then moved away, and I watched it cling to the trunk, woodpecker-style, below a substantial hole. Inserting its head, shoulders and upper body, it emerged with more of the same substance, which it again presented to the nearby female. Both the offerings were eaten by the female, and a short time later the two birds flew off.

Intrigued, I arranged for a tree surgeon to inspect the hole, where an old wasp nest was

found – about the size of a football, ‘taken completely apart’ and from which nearly all the internal part had been removed. I approached my namesake, Dr Michael Archer, of York St John University, who kindly commented: ‘When all the workers of a wasp nest die, fly and beetle larvae take over and eat any edible remains such as dead adult wasps, any surviving dead or alive wasp larvae and pupae and meconia. I assume that the Jackdaw was removing the invasive flies

and beetles (as larvae probably), which had overwintered in the remains of the wasp nest.’

While there is a verbal record of a Jackdaw tearing at a live wasp nest (Birkhead 1974), I have found no record relating to old nests, or to this type of courtship feeding.

Reference

Birkhead, T. R. 1974. Predation by birds on social wasps. *Brit. Birds* 67: 221–229.

Mike Archer, 14 Fulwood Park Mansions, Chesterwood Drive, Sheffield S10 5DU;
e-mail mikearcher@care4free.net

Willow Warbler attempting to take food from Tree Pipits feeding young

At about 11.00 hrs on Saturday 12th July 2014, at Cliburn Moss NNR, Cumbria, I was monitoring the nest of a pair of Tree Pipits *Anthus trivialis*. The nest, a second clutch, contained four young and was situated on the ground amongst grasses in a wildflower meadow. The adults were using a low Hawthorn *Crataegus monogyna*, to land upon and pause, before making their final approach to the nest. The same bush had been used by the male as a song post throughout the breeding season.

At one point, a juvenile Willow Warbler *Phylloscopus trochilus* landed in the bush and began searching for food. When a Tree Pipit with food in its bill landed on the bush before flying to the nest, the Willow Warbler immediately approached the Tree Pipit and began to try to take insects from the pipit's bill. The Tree Pipit moved its head and body position to avoid the attention of the Willow Warbler, and then flew towards the nest. The Willow Warbler pursued it in flight, continuing to try to take insects from the bill of the flying pipit. As a result, the Tree Pipit aborted its approach and returned to the Hawthorn, followed by the Willow Warbler. The latter then began to feed normally. The Tree Pipit made two further attempts to fly to the nest to deliver food but on each occasion the

Willow Warbler flew alongside and attempted to take insects from its bill. On both occasions the Tree Pipit aborted the approach and returned to the bush. The Willow Warbler then flew off, and the adult Tree Pipits resumed feeding their young.

The same behaviour was observed on 17th July, when the Tree Pipits were still feeding young in the nest, and again on 21st July, when the young had left the nest (observations on both occasions between 07.00 and 08.00 hrs). Although I cannot prove it, it seems very likely that the same individual Willow Warbler was involved. Its behaviour was not that of a very young bird instinctively begging for food from adults; instead, it appeared old enough to be independent and, rather than begging, it pecked insistently at the insects carried in the bill of the adult Tree Pipits. The behaviour certainly had an impact on the pipits, which aborted their feeding flights on several occasions as a result, although, at least in the interactions that I observed, the Willow Warbler was not successful in stealing any insects from the Tree Pipits. The persistence of the behaviour, over three separate visits, is interesting, and I wonder if the behaviour of the young Willow Warbler was spontaneous or had been learnt.

Steve Turnbull, 4 Leith Beck Fold, Melkinthorpe, Cumbria CA10 2DX;
e-mail kingfisher@leithbeck.wanadoo.co.uk

The *BB/BTO* Best Bird Book of the Year 2014

Abstract *British Birds* and the British Trust for Ornithology announce the winner of the Award for Best Bird Book of the Year. All books reviewed in *BB*, *BTO News* and on the BTO website www.bto.org during the year 2014 were eligible for consideration for this Award.

Another 83 books were eligible for our consideration this year. We wondered last year (*Brit. Birds* 107: 102–104) whether the interaction between birds and humans might become a continuing theme among our chosen books and, to some extent, it has. Three of the books in this year's top six deal either with bird populations in general or

with one family in particular, but two books pay homage to the remarkable influence that a single human, Charles Darwin, has had on our understanding of the world of birds, while the remaining book is arguably as much about humans as it is about birds (and certainly about the interactions between the two). We have pleasure in announcing the results.

Winner

Bird Atlas 2007–11: the breeding and wintering birds of Britain and Ireland

By Dawn Balmer, Simon Gillings, Brian Caffrey, Bob Swann, Iain Downie and Rob Fuller; BTO Books, 2013

Reviewed in BB by Mark Holling (Brit. Birds 107: 105–106)

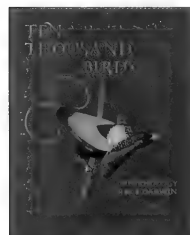
It is just about a human generation since the last winter bird atlas, though a cycle of 20 years between breeding bird atlases seems more or less established. To combine the two, compare the results with previous atlases and publish in two years is a colossal achievement and a testament to the power of the technology that has become available to process the increasing volumes of data that can be gathered from growing numbers of observers. The results are astonishing and we shall see their legacy over the years as this treasure trove of data is mined and analysed.



2nd Ten Thousand Birds: ornithology since Darwin

By Tim Birkhead, Jo Wimpenny and Bob Montgomerie; Princeton University Press, 2014

Reviewed in BB by Alan Knox (Brit. Birds 107: 373–374)



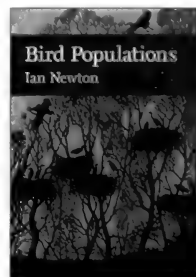
One might be forgiven for not realising from the title that this identification guide is actually about the North American warblers. Although the males in spring are mostly a blaze of often astonishing colour, at the other end of the season females and immatures can fully justify the epithet 'confusing'. This guide is both comprehensive, in all aspects of identification, and innovative, particularly in its use of sonograms and simple representations of birds in flight. The photographs, both for those familiar with the birds and for those who are yet to have that pleasure, are mouth-watering.

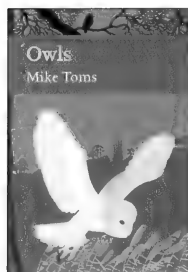
3rd Bird Populations

By Ian Newton; Collins (New Naturalist), 2013

Reviewed in BB by Rob Robinson (Brit. Birds 107: 236–237)

Who can fail to be interested in what is happening to our birds and why? Our winner this year shows us what has happened in recent decades. In this book, Ian Newton, who has written extensively on this subject, brings together our best and most up-to-date understanding of why. The author's characteristic lucidity makes complex ecological interactions understandable to everyone interested.





4th Owls

By Mike Toms; Collins (New Naturalist), 2014

Reviewed in BB by Ian Carter (Brit. Birds 107: 239)

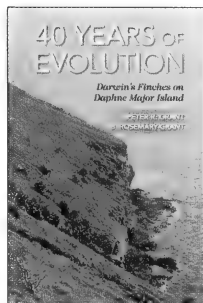
At long last, some have said! It is hard to believe that there has not been a New Naturalist overview of this family in the 70 years of the series. That said, this is a worthy addition – detailed, up to date and authoritative, though eminently readable. A must for anyone interested in a family that is enduringly popular, if not the most accessible either for casual observation or, indeed, for serious study.

5th Forty Years of Evolution: Darwin's Finches on Daphne Major Island

By Peter R. Grant and B. Rosemary Grant; Princeton University Press, 2014

Reviewed in BB by David Parkin (Brit. Birds 107: 708–709)

All living organisms need somewhere to live and, in turn, they modify that environment to some extent. None, however, has done more than *Homo sapiens* to affect whole landscapes. An understanding of how birds see and interact with their habitats is likely to be fundamental to understanding the forces behind population changes. This excellent synthesis of recent research by a range of contributors, mainly with an emphasis on Europe, deserves a wide audience.



6th A Message from Martha

By Mark Avery

Reviewed in BB by Mike Everett (Brit. Birds 107: 568)

Extinctions are rarely easy to date but the last Passenger Pigeon, the Martha of the title, died in Cincinnati Zoo on 1st September 1914. That hers had once been the most common wild bird species on earth and that the extinction was caused by our species adds particular poignancy. Indeed, this sad anniversary has resulted in several books. In this one, Mark Avery investigates with the eye of both scientist and conservationist and, as the title suggests, draws lessons for the future.

It is customary for us to draw attention to books that, while not making the listed six, have in some way piqued our interest. Art books often do, and Robert Gillmor's work always repays study: Robert Gillmor's *Norfolk Bird Sketches* (by Robert Gillmor; Red Hare Publishing, 2014 – see *Brit. Birds* 107: 780).

Two identification guides stood out for us: *The Helm Guide to Bird Identification: an in-depth look at confusion species* (by Keith Vinicombe, Alan Harris and Laurel Tucker; Bloomsbury, 2014 – see *Brit. Birds* 107: 374–375) brings up to date the much-loved Macmillan guide, first published as long ago as 1989, while the recently established Crossley format, based on photo montages, crossed the Atlantic with *The Crossley ID Guide: Britain and Ireland* (by Richard Crossley and Dominic Couzens; Princeton University Press, 2013 – see *Brit. Birds* 107: 54).

For many years it has become almost a tradition to admire another volume of the *Handbook of the Birds of the World*. There is a sense in which such a work will always be in progress, especially in these digital days, and we can already see the first

derivative in the heavyweight **HBW and BirdLife International Illustrated Checklist of the Birds of the World. Volume 1. Non-Passeriformes** (by Josep del Hoyo, Nigel J. Collar, David A. Christie, Andrew Elliott and Lincoln D. C. Fishpool; Lynx Edicions, 2014 – see *Brit. Birds* 107: 706–707). In a world in which taxonomy is as fluid and potentially controversial as it is now, no doubt more editions will be forthcoming in the future. Wide-ranging in a different sense is *The World of Birds* (by Jonathan Elphick; Natural History Museum, 2014 – see *Brit. Birds* 107: 711–712). Lavishly illustrated, it is a work of general reference, firstly providing answers to almost any ornithological question the reader might ask and secondly surveying all existing families of birds.

Finally, *Shrewdunnit: the nature files* (by Conor Jameson; Pelagic Publishing, 2014 – see *Brit. Birds* 107: 492) is a quirky collection of essays about the author's numerous and varied interactions with wildlife, and a book in the top six of at least one judge.

The announcement of a national atlas has in the past often inspired the creation of local and

regional atlases, and in some cases, updated avifaunas. Our current winner is no exception. Several county atlases have already appeared, but many more are still to come (see *BTO News* 309: 12–14). A number had been reviewed in 2014 and so were eligible for this award; we felt, however, that it does not do justice to the genre if only those eligible are considered in any given year and have to take their chances against books from many other fields. We have accordingly decided to defer a more systematic consideration of all such atlases and avifaunas until a majority of them have been

Peter Wilkinson, Ian Carter, Peter Hearn, John Marchant,
Robin Prytherch and Roger Riddington,
c/o BTO, The Nunnery, Thetford, Norfolk IP24 2PU

published, at which point we propose to make an award specifically for this group.

Acknowledgments

We are grateful to the BTO for making facilities available for judging at Swanwick, and especially to Carole Showell for sourcing books from the Chris Mead Library at Thetford.



Reviews

The Birds of Ghana

By Françoise Dowsett-Lemaire and Robert J. Dowsett
Tauraco Press, 2014

Pbk, 713pp; 21 plates with colour photos, c. 700 colour
distribution maps

ISBN 978-2-87225-007-3 Subbuteo code 2250073

£34.99 BB Bookshop price £31.50

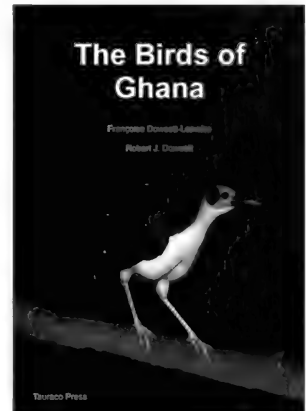
Being about the same size as the UK, Ghana is one of the most accessible countries in West Africa and (apart from a few inter-ethnic scuffles and land disputes in the far north) it is a relatively calm and safe destination. In a survey five years ago only 5% of travelling birders had visited Ghana, but a combination of the excellent *Birds of Ghana* (Borrow & Demey 2010) and competitively priced birding tours has made Ghana the fastest-growing bird-tourism destination in West Africa – despite the fact that none of the species present are endemic. However, the attraction has to be all but four of the Upper Guinea endemics that are found from here and farther west, plus 179 Guineo-Congolian forest species.

Despite being a great birding destination, Ghana is not immune to the threats that occur in much of Africa. In the last 100 years, six species of birds have ceased to occur in the country, and several others are now seriously threatened. In fact 49 species are considered to be of global or regional conservation concern, and on a recent visit I personally witnessed the way that some natural habitats are being decimated at an

alarming rate.

Anyone who has used the Dowsetts' other publications, covering Malawi and Zambia, will know what to expect, as they combine their own original research with the records of local and visiting ornithologists. They are nothing if not thorough and as an ornithological duo they achieve more in just a few years than some bird clubs manage to do over several generations! An initial 116-page introductory section includes chapters that review the vegetation and major bird habitats, biogeography, migration, conservation challenges and the history of ornithological exploration in Ghana. The main part of the book describes the status of 750 species, including around 100 that spend the northern winter in the country, and a further 50 or so that occur on passage or as vagrants.

The main attraction will be the maps, which clearly display the distribution of each species





The BB Bookshop, brought to you by Subbuteo Natural History Books

www.wildlifebooks.com/bb



(except rarer vagrants) by half-degree squares. While the maps in Borrow & Demey give a more colourful indication of where species are likely to be found, these new maps are based on actual record locations – albeit placed centrally within a square. The text complements the maps very well, summarising what is known of ecology, status, movements, breeding seasons, taxonomy and conservation for each species. There are 21 pages of colour photos illustrating habitats and some typical species.

Much has been discovered since the annotated BOU Checklist *Birds of Ghana* (Grimes 1987), and the Dowsetts question some past records and assumptions about status. They are well placed to do so, having camped for several days at a time in almost 100 locations around the country, covering all of the districts and every habitat type. No wonder they were able to include a gazetteer of

more than 860 localities. The authors have also reviewed all published records and other data from private notebooks. Wherever possible they worked with Llewellyn Grimes to check details of original sightings in his checklist, and as a result they chose to consider a number of records as not proven. The outcome is a bibliography of around 600 references. Ringing recoveries affecting Ghana are analysed and maps of recoveries have been included – emphasising Ghana's position as a key location for many European migrants.

One might think that with three major atlases under their belts the authors would be looking to enjoy some time off, but they now have neighbouring Togo in their sights, and so before too long yet another African country will be put under a much needed spotlight.

Keith Betton

National Birds of the World

By Ron Toft

Bloomsbury, 2014

Hbk, 224pp; 550 colour photographs and illustrations

ISBN 978-1-4081-7835-5 Subbuteo code M24335

£25.00 BB Bookshop price £22.50

There are 196 countries around the world, and over half of them have chosen a 'national bird' at some point. This book takes 99 of these countries and reveals the bird selected by each nation. The text describes the species, its lifestyle, how it was chosen and, importantly, where to see it. The last aspect is fine for birds like the African Fish Eagle *Haliaeetus vocifer*, chosen by Malawi, Namibia, Zambia and Zimbabwe. However, the national bird of Belgium and France is the 'Gallic Rooster' – or Red Junglefowl *Gallus gallus*, and you are most likely to see one of those strung up in a butcher's shop!

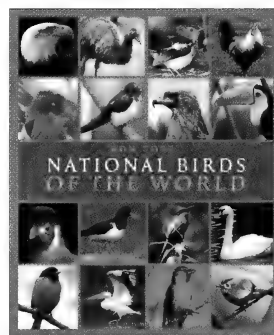
Each species is richly illustrated with photos, including shots of the ephemera that indicate the selection – such as coins, stamps and national flags. Some choices are blindingly obvious, such as the Emu *Dromaius novaehollandiae* for Australia and the kiwi *Apteryx* for New Zealand. But there are odd examples in amongst the choices. Liberia did not choose the Liberian Greenbul *Phyllastrephus leucolepis* (a species that was both found and lost in 1985), but instead decided on the Common Bulbul *Pycnonotus barbatus* – a bird that most birders would choose to forget!

Actually, I do think that national birds should

be for the enjoyment of the nation's people, so it is best to select a bird that they know already. Burma was brave in choosing the Grey Peacock-pheasant *Polyplectron bicalcaratum* – a bird that many of us would like to see if only it would reveal itself! Although you still have more chances of seeing that than the Dodo *Raphus cucullatus* – the national bird of Mauritius, last seen in 1662.

This book will be interesting to a wide audience since it focuses not just on the birds, but also on their cultural presence both today and in history. There is also a section of emblem miscellany with little-known facts about the national birds and those others that are featured in the country's historical documents but were never awarded the title of 'national bird'.

Keith Betton



SUBBUTEO
NATURAL HISTORY BOOKS

The BB Bookshop, brought to you by Subbuteo Natural History Books
www.wildlifebooks.com/bb



Latin for Bird Lovers

By Roger Lederer and Carol Burr
Timber Press, 2014

Hbk, 224pp; numerous colour illustrations
ISBN 978-1-60469-546-5 Subbuteo code M24203
£14.99 BB Bookshop price £13.50

Have you ever paused to wonder about the scientific names of birds, how they were arrived at, by whom and exactly what they mean? Well here is an opportunity to learn more with this superbly produced book, packed with illustrations (and modestly priced, by modern standards). The main part is devoted to the scientific names, over 3,000, commencing with Aalge – *Al-jee* ‘a type of auk, from the Danish, as in *Uria aalge*, the Common Murre or Guillemot’. The concluding entry is *Zosterops* – *Zos-ter-ops* ‘Greek, *zoster*. Girdle, and *ops*, appearance, as in *Zosterops sengalensis*, the African Yellow White-eye’.

Supporting the alphabetical entries are a series of informative texts including biographies of famous birders, such as John Gould and David Lack. There are genus profiles, bird themes ranging

from avian adaptations to foraging, and short paragraphs headed ‘Latin in Action’.

The authors, Roger Lederer (who maintains the website ornithology.com) and Carol Burr (an author, editor and artist), have produced a book to savour, with a new discovery on each page. It will provide unlimited pleasure and a wonderful source for those tasked with setting questions at members’ evenings at the local bird club. Indeed, no birdwatcher should be without a copy.

David Saunders



A Feathered River Across the Sky

By Joel Greenberg
Bloomsbury, 2014

Hbk, 289pp; colour and black-and-white illustrations
ISBN 978-1-62040-534-5 Subbuteo code M23671
£18.99 BB Bookshop price £17.00

When Europeans arrived in North America, 25–40% of the continent’s birds were Passenger Pigeons *Ectopistes migratorius*, travelling in flocks so massive as to block out the sun for hours or even days. It is small wonder no-one considered that by the early years of the twentieth century such a bird could become extinct.

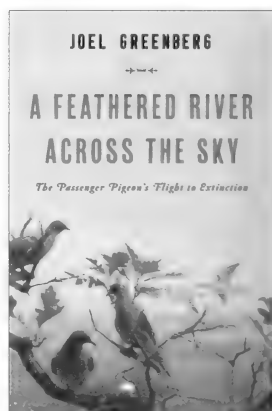
Joel Greenberg was mesmerised by the Passenger Pigeon story as a schoolboy. Now, his fine book chronicles the whole desperate, incredible story of how such an abundant bird, a single flock of which in 1860 exceeded a billion birds, became extinct in little over 40 years. He brings together numerous and compelling eyewitness accounts of the slaughter. The last Passenger Pigeon in the wild has long been accepted as that shot by a boy on 24th March 1900 in Ohio (‘Buttons’, as the specimen became known, because buttons were used for the eyes), but Greenberg discovered two subsequent records of wild birds. One shot in Illinois on 12th March 1901 is fortuitously conserved at Millikin University. Just over a year later, another, one of two birds well

documented, being described as ‘a beautiful male’, was killed near Laurel, Franklin County, Indiana. It was acquired from the young man who

had shot it by a pharmacist, Charles Muchmore, ‘for a week’s supply of tobacco trade’.

Great efforts were made, rumours circulated, searches instituted, rewards offered, but no more Passenger Pigeons were found in the wild. Those in zoological collections refused to breed and dwindled in number. One bird in particular stood out – ‘Martha’ in Cincinnati Zoological Gardens. After her death on 1st September 1914, her frozen body was despatched on a three-day journey to the Smithsonian, where she resides to this day, last of a once-mighty race.

David Saunders



Recent reports

Compiled by Barry Nightingale and Harry Hussey

This summary of unchecked reports covers early December 2014 to early January 2015.

Headlines Some high-quality arrivals punctuated what can be a very quiet period and several long-staying rarities remained into the New Year to give year-listers a welcome boost. Star birds were undoubtedly single Little Bustards in Yorkshire and Sussex, and a young male Harlequin Duck in North-east Scotland, while in Ireland the country's first Black Scoter, in Co. Kerry, took pride of place. Somewhat less obliging were a Naumann's Thrush in Co. Cork, a Greater Yellowlegs in Hampshire and a Brünnich's Guillemot in the Outer Hebrides. In Scotland there were Ivory Gulls in the Outer Hebrides and Highland, and three Gyr Falcons. Numbers of long-staying American Wigeons, Lesser Scaups and Penduline Tits were swelled by new arrivals.

Lesser White-fronted Goose *Anser erythropus* Minsmere, four, 30th December (part of the 2014 Swedish reintroduction project), same North Warren and Sudbourne Marshes (all Suffolk), 31st December to 3rd January (then satellite tracked to Belgium). **Ross's Goose** *Anser rossii* Marshside (Lancashire & N Merseyside), presumed long-stayer again 26th December. **Canada Goose** *Branta canadensis* One of the smaller races, North Slob (Co. Wexford), long-stayer to 4th January. **Cackling Goose** *Branta hutchinsii* Islay (Argyll), long-stayer to 6th January; North Uist (Outer Hebrides), 17th December to 11th January. **American Wigeon** *Anas americana* Long-stayers Gannel Estuary area (Cornwall – two birds), Shapinsay (Orkney) and Loch of Collaster (Shetland); new arrivals Harper's Island (Co. Cork); Saltash (Cornwall); Yelland (Devon); Malin (Co. Donegal); Marshside; Cloddach Quarry (Moray & Nairn); Meikle Loch (North-east Scotland); and North Uist.

Ferruginous Duck *Aythya nyroca* Long-stayer Blashford Lakes (Hampshire); new arrivals Carr Vale (Derbyshire); Slimbridge (Gloucestershire). **Lesser Scaup** *Aythya affinis* Long-stayers Llangorse Lake (Breconshire), Cardiff Bay Wetlands (East Glamorgan) and Lough Gill (Co. Kerry); elsewhere, Trabboch Loch (Ayrshire), 15th December to 10th January; Dozmary Pool (Cornwall), 27th December to 10th January; Rahasane Turlough (Co. Galway), 3rd January; Lough Gill, 12th January. **King Eider**

Somateria spectabilis Long-stayers at Ruddon's Point (Fife), to 10th January and Yell (Shetland), 18th December; also Burghead (Moray & Nairn), 28th December. **Harlequin Duck** *Histrionicus histrionicus* River Don (North-east Scotland), 3rd–12th January. **Black Scoter** *Melanitta americana* Rossbeigh (Co. Kerry), 8th–12th January. **Surf Scoter** *Melanitta perspicillata* Long-stayers Denbighshire (up to nine), Lothian and Suffolk/Essex; Newcastle (Co. Down), 2nd January.

Pacific Diver *Gavia pacifica* Mount's Bay (Cornwall), long-stayer to 11th January. **White-billed Diver** *Gavia adamsii* Long-stayer Bluemull Sound (Shetland), 11th January; Ballycotton (Co. Cork), 30th December; South Ronaldsay (Orkney), 2nd–4th January.

Night Heron *Nycticorax nycticorax* Burnham-on-Crouch/Wallasea (Essex), 30th December; Youghal (Co. Cork), 8th January. **Cattle Egret**



66. First-winter male Harlequin Duck *Histrionicus histrionicus*, River Don, North-east Scotland, January 2015.

Colin Davies



67. Juvenile Ivory Gull *Pagophila eburnea*, Uig, Skye, Highland, January 2015.

Bubulcus ibis Long-stayers Cheshire & Wirral to 24th December and Kent (two) to 9th December. Purple Heron *Ardea purpurea* Ham Wall (Somerset), 10th December. Glossy Ibis *Plegadis falcinellus* records from Cambridgeshire, Devon and Co. Waterford. Eurasian Spoonbill *Platalea leucorodia* Arne (Dorset), 40, 10th December.

American Coot *Fulica americana* Long-stayers Lough Gill, to 12th January, and North Uist, to 6th January.

Little Bustard *Tetrax tetrax* East Guldeford (Sussex), 30th December; Fraithorpe (Yorkshire), 31st December to 1st January.

White-rumped Sandpiper *Calidris fuscicollis* Belfast Lough (Co. Antrim), 26th December. Spotted Sandpiper *Actitis macularius* Inverlloch (North-east Scotland), long-stayer intermittently to 10th January. Greater Yellowlegs *Tringa melanoleuca* Titchfield Haven (Hampshire), 11th January. Lesser Yellowlegs *Tringa flavipes* Rogerstown (Co. Dublin), long-stayer to 11th January; Pett Level (Sussex), 25th December to 11th January; North Berwick (Lothian), 1st–4th January. Long-billed Dowitcher *Limnodromus scolopaceus* Tacumshin (Co. Wexford), 2nd January.

Brünnich's Guillemot *Uria lomvia* The Minch (Outer Hebrides), 14th December.

Forster's Tern *Sterna forsteri* Mutton Island, 15th December and 2nd January, same Newtownlynch Pier (both Co. Galway), 20th

December. Ivory Gull *Pagophila eburnea* Benbecula (Outer Hebrides), 13th–18th December; Skye (Highland), 23rd December, then 28th December to 4th January. Bonaparte's Gull *Chroicocephalus philadelphia* Long-stayers Dawlish Warren area (Devon), to 9th January, and Loch Gilp (Argyll), 30th–31st December. Laughing Gull *Larus atricilla* Ballycotton, long-stayer to 11th January. American Herring Gull *Larus smithsonianus* Killybegs (Co. Donegal), 20th December. 'Thayer's Gull' *Larus (glaucoides)*

thayeri Mirfield, 27th–28th December, same Pugneys Country Park (both Yorkshire), 28th December. 'Azorean Yellow-legged Gull' *Larus michahellis atlantis* Knightstown (Co. Kerry), 31st December.

Snowy Owl *Bubo scandiacus* Kincasslagh (Co. Donegal), long-stayer into January 2015.

Gyr Falcon *Falco rusticolus* Corragaun Lough, 14th December, presumed same Carrowmore Strand (both Co. Mayo), 12th January; Glen Ey (North-east Scotland), 29th December; Dumbarton, then West Ferry (both Clyde), 3rd January; Ardcloch (Highland), 5th January.

Penduline Tit *Remiz pendulinus* Darts Farm/Topsham (Devon), three long-stayers to 11th January; elsewhere, singles Exeter, 13th December and Lannacombe (both Devon), 14th December; Meadow Lane GP, 28th–30th December, presumably same Marston Vale CP (both Bedfordshire), 4th January. Dusky Warbler *Phylloscopus fuscatus* Chichester Gravel-pits (Sussex), 5th–11th January.

Rose-coloured Starling *Pastor roseus* Bishopston (Somerset), long-stayer sporadically to 29th December; Llandrindod (Breconshire), 18th December; Prudhoe (Northumberland), 11th January. Naumann's Thrush *Turdus naumanni* Ballyhooly (Co. Cork), 13th December. 'Eastern Black Redstart' *Phoenicurus ochrurus phoenicuroides* St Mary's (Scilly), long-stayer to 11th January. Blyth's Pipit *Anthus godlewskii* Pugneys Country Park, long-stayer to 5th January.



British Birds



Browse current articles

- ▶ Book reviews
- ▶ Editorials
- ▶ Latest issues
- ▶ Letters
- ▶ Main articles
- ▶ News and comment
- ▶ Notes
- ▶ Obituaries

go online now at
www.britishbirds.co.uk

South West OPTICS

Swarovski

Zeiss

Leica

Nikon

Fuji

Opticron



Cornwall's Premier Optics and Camera Specialist

22a River St. Truro 01872 263444 swoptics.co.uk

DISCOVER WILD HERZEGOVINA

All inclusive guided birdwatching nature walks & gastro tour

www.wild-herzegovina.com



FOCALPOINT

www.fpoint.co.uk

Credit/debit cards accepted

*Binoculars
& Telescopes*

Show Room Sales 01925 730399

*Top Makes, Top Models,
Top Advice, Top Deals, Part Exchange*

**REPAIRS & SERVICING OF
BINOCULARS & TELESCOPES**

Optrep Optical Repairs

SINCE 1960

www.opticalrepairs.com

Tel: 01243 601365

E-mail: info@opticalrepairs.com

Optrep (Ref: BB), 16 Wheatfield Road,
Selsey, West Sussex PO20 0NY
(5 minutes from Pagham HLN)



Savus peregrina

COME AND SEE THE AMAZING WORLD OF ANDALUSIAN BIRDS

Specialized guides
Unique surroundings
Selected hotels
Reduced groups

from

550€
4 DAYS

Be a part of the real experience!

For further information:

www.ophrysnature.com

Oriental Bird Club

Join OBC today
and receive:

BirdingASIA

Two fully illustrated issues per year with articles on identification, birding hotspots, little-known birds, taxonomy and conservation

Forktail—Journal of Asian Ornithology

Annual peer-reviewed scientific journal on all aspects of the region's birds



Oriental Bird Club (OBC)

The OBC was founded in 1985 and today has more than 2,000 members worldwide. Thanks to the efforts and generosity of members and corporate sponsors, the Club runs an annual programme of conservation grants.

Join online:

www.orientalbirdclub.org

Or contact the Membership Secretary at:
Oriental Bird Club
P.O. Box 324
Bedford, MK42 0WG, UK
Email: mail@orientalbirdclub.org

Oriental Bird Club is a UK Registered Charity No. 297242





Naturetrek

Don't miss our 2015 bargain birding selection

Argentina 9 days - £2,795	Ghana - Picathartes 9 days - £2,195	South Africa - Kruger 10 days - from £2,395
Armenia 9 days - £1,695	Honduras 9 days - from £2,195	Sri Lanka 10 days - £1,795
Western Australia 12 days - £3,895	India - a range of tours	Taiwan
Australia - Queensland 13 days - £3,895	Kazakhstan 9 days - £2,595	Thailand
Bolivia - Highlands 12 days - £2,795	Kenya 10 days - £2,595	Uganda 9 days - £2,795
Bolivia - Lowlands 10 days - £2,795	Nepal - a range of tours	Venezuela - a range of tours 9 days - £2,095
Borneo 10 days - £2,795	Panama 9 days - from £2,295	Zambia 10 days - from £2,495
Botswana 10 days - £2,595		
Brazil 10 days - £2,595		
Cuba 12 days - £2,795		
Ecuador - a range of tours		
Ethiopia		
Gambia		



www.naturetrek.co.uk

01962 733051

info@naturetrek.co.uk

Naturetrek, Cheriton Mill, Alresford, Hampshire, SO24 0NG

DBA Oasis S-Coat Mg

Delivering sublime performance and handling in a class leading compact & lightweight body, DBA Oasis S-Coat Mg are among the very best birdwatching binoculars money can buy.



100% made in Japan using the highest quality components and coatings, superb clarity and colour contrast are guaranteed in even the most demanding field conditions. Supplied in soft leather case with rainguard, neoprene lanyard and rubber objective lens covers. 30 year guarantee.

8x42 £629, 10x42 £629

For your nearest stockist please visit:
www.opticron.co.uk/Pages/dba_stockists.htm



HR ED Fieldsopes

Designed and engineered without compromise, HR ED fieldsopes deliver exceptional optical performance combined with sublime handling and total reliability. 30 year guarantee.

Bodies (Str or 45°): **HR 66 GA ED £749, HR 80 GA ED £899**

Recommended Eyepieces: **SDLv2 18-54x/24-72x £289, HDF T 20xWW/27xWW £139**

HDF T 28xWW/38xWW £159, Range of telephoto options available



Phonescoping Adapters

Opticron smartphone photoadapters are a convenient and inexpensive way of attaching your smartphone to your Opticron spotting scope eyepiece and shooting high magnification photos and video. Available for iPhone 4/4S, 5/5S, Samsung Galaxy S3/S4. Prices from £39.95

Opticron equipment can be tried, tested and purchased at good optical retailers nationwide. For more information and to order a **Product Guide** please phone **01582 726522** or visit us online at **www.opticron.co.uk**

Opticron. Unit 21, Titan Court, Laporte Way, Luton, Beds, LU4 8EF UK Fax: 01582 723559 Email: sales@opticron.co.uk

